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AVIS

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## **STATEMENT OF WORK FOR THE R&O OF CYLINDERS, WINCHES AND HYDRAULIC MOTORS**

The Department of National Defence requires repair and overhaul of cylinders, cylinder assemblies and winches to support the sustainment of the Heavy Logistic Vehicle Wheeled (HLVW) fleet of vehicles. This Statement of Work describes the requirements to return the following NSNs listed below in para 1 and associated internal and external parts to a serviceable condition.

1. The Contractor must carry out all necessary processes required to return the following cylinders, winches, hydraulic motors and related items such as internal parts, external parts, including shafts protruding from the cylinders and attachments to a fully serviceable condition, in accordance with the scope of work detailed herein and Annex B – Free Flow Log SOW. The Contractor will provide a complete evaluation and repair of these parts.

- a) Cylinder Assembly, NSN 3040-99-831-2145, p/n AD0623, NCAGE U5503, QAC-Q
- b) Cylinder Assembly, NSN 3040-99-405-5064, p/n AD0634, NCAGE U5503, QAC-Q
- c) Cylinder Assembly, NSN 3040-99-755-5136, p/n AD0620, NCAGE U5503, QAC-C
- d) Cylinder Assembly, NSN 3040-99-192-4333, p/n AD0618, NCAGE U5503, QAC-C
- e) Cylinder Assembly, NSN 2590-21-894-1528, p/n UP211, NCAGE 35683, QAC-Q
- f) Cylinder Assembly, NSN 3895-21-906-0215, p/n UP 460, NCAGE 35683, QAC-Q
- g) Cylinder Assembly, NSN 3895-21-906-0217, p/n 604 25 7205, NCAGE 35683, QAC-Q
- h) Cylinder Assembly, NSN 3895-21-906-0220, p/n 604 25 7558, NCAGE 35683, QAC-C
- i) Cylinder Assembly, NSN 3895-21-906-0216, p/n 000 25 7952, NCAGE 35683, QAC-Q
- j) Cylinder Assembly, NSN 3815-01-218-3633, p/n UP-218, NCAGE 35683, QAC-C
- k) Cylinder Assembly, NSN 3040-01-218-5216, p/n UP-221, NCAGE 35683, QAC-C
- l) Cylinder Assembly, NSN 3810-01-219-4478, p/n UP-225, NCAGE 35683, QAC-C
- m) Cylinder Assembly, NSN 3040-01-218-8166, p/n UP-217, NCAGE 35683, QAC-C
- n) Cylinder Assembly, NSN 3040-21-907-6433, p/n 000-25-7618, NCAGE 35683, QAC-C
- o) Cylinder Assembly, NSN 3040-21-907-6432, p/n 000-25-7622, NCAGE 35683, QAC-C
- p) Cylinder Assembly, NSN 3895-21-906-0226, p/n 604 25 7209, NCAGE 35683, QAC-Q
- q) Cylinder Assembly, NSN 3895-21-906-0225, p/n 604 25 7208, NCAGE 35683, QAC-Q
- r) Cylinder Assembly, NSN 3895-21-906-0219, p/n 604-25-7206, NCAGE 35683, QAC-Q
- s) Cylinder Assembly, NSN 2590-21-908-4347, p/n 024-8862-0, NCAGE 3AB11, QAC-Q
- t) Cylinder Assembly, NSN 2590-21-908-4337, p/n 008-8869-0, NCAGE 3AB11, QAC-C
- u) Cylinder Assembly, NSN 2590-21-906-3332, p/n 012-8828-5, NCAGE 3AB11, QAC-Q
- v) Cylinder Assembly, NSN 2590-21-906-3347, p/n 016-8898-5, NCAGE 3AB11, QAC-C
- w) Cylinder Assembly, NSN 3040-21-914-4322, p/n 9775807-1, NCAGE 35907, QAC-C
- x) Cylinder Assembly, NSN 3040-01-535-6606, p/n R30010040SSAZ, NCAGE 32WY, QAC-C
- y) Cylinder Assembly, NSN 3040-12-330-3853, p/n 8343 955 103, NCAGE D8124, QAC-Q
- z) Cylinder Assembly, NSN 3950-99-256-5568, p/n A4406060, NCAGE U5503, QAC-C
- aa) Winch Assembly, NSN 2590-99-721-4378 (Bridge Adapter Pallet), p/n A4609160, NCAGE U5503, QAC-C
- bb) Winch Assembly, NSN 2590-01-322-1606 (Self Recovery), p/n 51802, NCAGE 0EJ14, QAC-Q

- cc) Winch Assembly, NSN 2590-01-364-7496 (Recovery), p/n 51632, NCAGE 0EJ14, QAC-C
- dd) Winch Assembly, NSN 2590-01-364-7495 (Aux. Recovery), p/n 51811, NCAGE 0EJ14, QAC-C
- ee) Winch Assembly, NSN 2590-01-367-6768 (Self Loading Tractor), p/n 51814, NCAGE 0EJ14, QAC-Q
- ff) Winch Assembly, NSN 2590-21-904-9727 (Crane PK19000), p/n 760 00 0110, NCAGE 35683, QAC-Q
- gg) Motor Hydraulic, NSN 4320-01-327-1279 (Self Load Tractor), p/n 313-9310-282, NCAGE 13829, QAC-C
- hh) Motor Hydraulic, NSN 4320-01-365-3910 (Recovery Winch), p/n 313 9710 202, NCAGE 13829, QAC-Q
- ii) Motor Hydraulic, NSN 2540-01-375-5556 (Aux. Winch Recovery), p/n 056-2-AS, NCAGE 0ACY8, QAC-C
- jj) Motor Hydraulic, NSN 2540-01-345-8935 (Self Recovery Winch), p/n 116-A-106-AM-0, NCAGE 0ACY8, QAC-C
- kk) Motor Winch, NSN 2590-21-904-9728 (Crane PK19000), p/n 601835, NCAGE 38319, QAC-C
- ll) Motor Winch, NSN 2590-20-012-4008 (Crane PK19000), p/n 208057, NCAGE 38319, QAC-Q
- mm) Winch Assembly, NSN 2590-20-012-4007 (Crane PK19000), p/n 406414, NCAGE 38319, QAC-Q

2. 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, repair, overhaul, calibration, testing and packaging.
3. The Contractor is responsible for procuring all replacement parts and materials in support of the R&O services to bring the aforementioned items to serviceable condition. 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).
4. All work must be performed in accordance with the most recent OEM specifications and DND technical publication C-30-404-000/MP-000 as applicable.
5. In the event of conflict between the documents referred to herein, the Original Equipment Manufacturers (OEM) specification takes precedence.
6. The following work is mandatory and must be performed in conjunction to para 4 for all cylinders and related items.

#### 6.1.Cleaning

All internal components must be cleaned as per specifications (para 4). External surfaces such as the housing and cases for winches must have the old paint removed to ensure there are no cracks and that the new paint adheres to all surfaces when repainted.

#### 6.2.Inspection

The cylinders, winches, hydraulic motors and related items must be inspected completely for worn, damaged, burnt, cracked and broken internal and external parts. The process must include visual and physical inspection of all threaded holes and inserts.

#### 6.3.Repair

Piston rods that are worn or damaged due to, but not limited to, deep scratches, galling, corrosion or warpage that exceed the specifications must be re-chromed or replaced.

All threads and threaded ports found damaged must be repaired.

#### 6.4.Painting

The cylinders, winches, hydraulic motors and related items must be coated with a commercial grade automotive paint, color 34094 (flat green).

During the painting process, the contractor must ensure all exposed machined surfaces are left paint free with a suitable corrosive resistant compound applied to the surfaces.

The Contractor must also ensure that all exposed seals and rubber protective covers (rubber boots) are kept paint free to prevent the surfaces from drying and cracking. The Contractor must ensure that 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.

#### 6.5.Packaging and Preservation:

The cylinders and related items must be preserved, packaged, handled, stored and transported as per the specifications in D-LM-008-002/SF-001. The process must include caps and inserts for all threaded openings.

#### 6.6.Crates

The Contractor must replace wooden crates for items identified in para 1, 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 a record of all rejected crates. 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.
- 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.

#### 6.7.Markings

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 ↑

7. Mandatory replacement parts

The contractor must replace all parts as detailed in C-30-404-000/MP-000 and the most recent OEM specifications. The following replacement parts for the winches and motors supersede C-30-404-000/MP-000, Section 8. Some part numbers listed below may have been superseded by the OEM Manufacturer.

a) NSN 2590-99-721-4378 Winch Assembly

Description	Part numbers	Qty
O Ring	25104	1
Pin	20900	3
Bearing	25005	3
Gear Planet	20113	3
Ring	25004	1
Ring	25086	1
Ring	25055	1
Bearing	25087	1
Seal-Oil	25933	1
Bearing	25667	1
Seal	25665	1
Washer	20896	1
Bearing	25666	1
Valve	25667	2
O Ring	21524	2
O Ring	25738	1
O Ring	25083	2
O Ring	25018	1
O Ring	25061	1
O Ring	25630	1
O Ring	25629	1
Kit Seal Hydraulic Motor	25589	1

b) NSN 2590-01-322-1606 Winch Assembly

Description	Part numbers	Qty
Cover Bearing	-	1
Plug Vent C/W O Ring	1019-4	1
Ring Retaining	1296	1
Seal	1061	1
Ring-Back Up	1142-14	1
Seal Quad Ring	1062-15	1
Ring Back Up	8-363-N300-90	1
Ring Back Up	8-356N300-90	1
O Ring	2-356N602-70	1
Kit Cartridge Valve Seal	990-011-007	1
O Ring	-	2
Bearing	-	2

Bearing	-	1
Seal Oil	-	2
Ring Retaining	-	2
O Ring	9636	2
Kit Seal Counter Balance Valve	9643	1
Ring Seal	1046	2
Gasket	11262	1
O Ring	-	1
Pin-Spring	3325	1
O Ring	2-210N602-70	2
O Ring	2-363N602-70	1

c) NSN 2590-01-364-7496 Winch Assembly

Description	Part numbers	Qty
Gasket	1162	1
O Ring	2-261N304-75	1
Bearing	-	7
Disc Friction	11603	5
Plate Drive	3159	4
Ring Backing	8-356N300-90	1
O Ring	2-356N602-70	2
O Ring	2-363N602-70	1
Ring Backing	8-363N300-90	1
Seal Shaft	9889	1
Bearing	11318	2
Bearing	11372	2
Spring Compression	2319	12
Valve Cartridge	CBGG-LCN	1
Kit Cartridge Valve Seal	T-17-990-017-007	1
Bearing	-	18
Seal	391-2883-115	1
Ring Sealing	391-2585-022	2
Bearing	391-0381-059	4
Seal	391-2884-021	2
Seal Pocket	391-2881-051	5
Seal Retainer	391-3383-087	1
Seal	9889	1
O Ring	9600	2
O Ring	9605	1
Spring Compressor	11892	1
O Ring	9964	1
Kit Seal	1327	1
O Ring	2-236N304-75	1
O Ring	2-165N304-75	1
Pin	11969	1
Spring Compressor	C0390-043-0880	1
O Ring	9821	1
Shifter Clutch	11968	1
O Ring	2-223N304-75	2

Gasket	1162	1
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d) NSN 2590-01-364-7495 Winch Assembly

Description	Part numbers	Qty
Kit Seal	1327	1
O Ring	2-236N304-75	1
O Ring	2-165N304-75	1
Pin	11969	1
Shifter Arm	11954	1
O Ring	9821	1
O Ring	2-165N304-75	2
Ring Thrust	11865	2
Bearing	NB-4012	2
Seal Quad	9641	2
Ring	2-228N304-75	1
Seal Drum	12515	1
Shifter Clutch	11968	1

e) NSN 2590-01-367-6768 Winch Assembly

Description	Part numbers	Qty
Gasket	1162	1
O Ring	2-261N304-75	1
Bearing	81434	2
Disc Friction	11603	5
Plate Drive	3159	4
Ring Back Up	8-356N300-90	1
O Ring	2-356N602-70	2
O Ring	2-363N602-70	1
Ring Back Up	8-363N300-90	1
Seal-Shaft	9889	2
Bearing Bronze	11318	2
Bearing bronze	11372	2
Spring Compression	2319	12
Kit Seal Cartridge Valve	T-17-990-017-007	1
Seal	391-2883-115	1
Ring Sealing	391-2585-022	2
Bearing	391-0381-059	4
Seal	391-2884-021	2
Kit Seal	391-2881-051	1
Seal Retainer	39-3383-087	1

Ring Retaining	MS16624-1425	1
O Ring	9600	2
O Ring	9605	1
Spring Compression	11892	1
O Ring	9964	1
Bearing	9109K	1

f) NSN 2590-21-904-9727/2590-20-012-4007 Winch Assembly

Description	Part numbers	Qty
O Ring	MS28775-042	1
O Ring	MS28775-166	1
O Ring	MS28775-244	1
O Ring	MS28775-240F	1
Ring Piston	765-11-0010	1
O Ring	MS28775-245	1
Roller Clutch	765-11-0036	1
Hub Brake	765-11-0016	1
Pin	765-11-0001	3
Bearing	765-11-0046	3
Bearing	765-11-0034	1
Ring	765-11-0057	1
Seal	323126	1
Bushing	765-11-0004	1
Spring	765-11-0054	1
Ball	765-11-0055	1
Spring	765-11-0063	2
Spring	765-11-0006	6
O Ring	MS28775-010	1
Kit Seal	765-11-0051	1
Seal	765-11-0044	1
Bearing	765-11-0025	2
Pin	765-11-0002	3
Bearing	765-11-0047	6
Seal	765-11-0043	1

g) NSN 4320-01-327-1279 Motor Hydraulic

Description	Part numbers	Qty
Valve Cartridge	CBGG-LCN	1
Kit Valve Seal	T-17-990-017-007	1
O Ring	2-223N304-75	1
Gasket	1162	1
Seal	391-2883-115	1
Ring Sealing	391-2585-022	2
Bearing	391-0381-059	4
Seal	391-2884-021	2
Seal Pocket	391-2881-051	5
Seal Retainer	391-3383-087	1

h) NSN 4320-01-365-3910 Motor Hydraulic

Description	Part numbers	Qty
Valve Cartridge	CBGG-LCN	1
Kit Valve Seal	T-17-990-017-007	1
O Ring	2-223N304-75	2
Gasket	1162	1

Seal	391-2883-115	1
Ring Sealing	391-2585-022	2
Bearing	391-0381-059	4
Seal	391-2884-021	2
Seal Pocket	391-2881-051	5
Seal Retainer	391-3383-087	1

i) NSN 2540-01-375-5556 Motor Hydraulic

Description	Part numbers	Qty
Kit Seal	1927	1

j) NSN 2540-01-345-8935 Motor Hydraulic

Description	Part numbers	Qty
Kit Seal	1158	1
Plug Vent c/w O ring	1019-4	1
Bearing	-	1

8. Substitution:

- 8.1. All substitute parts must be supplied by OEM or the current IP Owner or their authorized distributors / dealers, in accordance with the most up to date drawings or specifications.
  - 8.2. Any proposed amendment or change to the part specification must be authorized in writing by the Technical Authority (TA).
  - 8.3. All non-OEM or non-IP Owner parts, must be of the same form, fit, function and quality as per the OEM's or current IP Owner's specification and must be approved in writing by the TA prior to their use.
  - 8.4. The Contractor must provide to the TA information required to evaluate the proposed substitute parts including technical data, drawings and specifications.
9. The contractor must maintain records of failure reports and provide a copy to the TA upon request. The information must include the following:
- a) Work Order number; and
  - b) Classification of failure:
    - (i) Normal Wear & Tear,
    - (ii) Abnormal Condition, and
    - (iii) Cause of Failure.

The contractor must identify the cause of failure using one of the following conditions:

- a) Misuse,
- b) Improper Maintenance,
- c) Manufacture Defect and
- d) Accident



10. Repair and Overhaul Manager (R&OM):

The Contractor must assign an R&OM for this R&O contract. The R&OM is responsible for all aspects of the work under this SOW. The R&OM is the main interface with DND.

The Contractor must advise the TA and the PA of any changes associated with the role of R&OM within 10 days from the time the change is implemented.

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

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

12. Quality assurance requirements:

12.1. Responsibility :

The contractor is responsible for all inspections required to complete the work under this SOW unless otherwise specified in the contract. Inspections include:

- (a) A sample inspection for each individual R&O process stage as required;
- (b) Visual inspection of parts prior to installation;
- (c) All items must be inspected for serviceability after overhaul;
- (d) All inspection records must be kept as records for the duration of this contract.

All inspections must be coordinated with NDQAR.

Every failure will be evaluated on a case-by-case basis by the Contractor in collaboration with NDQAR and the Technical Authority. The contractor is fully responsible to ensure they are knowledgeable on recent OEM technology and process changes. This information is to be forwarded to the Technical Authority to determine if an engineering change must be raised.

13. R&O Contractor Effectiveness Report

13.1 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.

13.2 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.

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

13.4 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

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