



NOTICE

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AVIS

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ANNEX A – STATEMENT OF WORK

The BV206 fleet is obsolete and requires Repair and Overhaul services in order to provide fleet sustainment for the next 5 years. The BV206 fleet is expected to be replaced through the Domestic Arctic Mobility Enhancement (DAME) project by 2025. There are 2 engines used for the BV206 vehicle, one is a diesel 5 cylinder engine (D5) and one is a diesel 6 cylinder engine (D6).

1. The Contractor must carry out when requested, all necessary work identified hereinafter, to return the following items to a serviceable condition in accordance with Annex B - Logistics Statement of Work for Repair and Overhaul for Repair and Overhaul Contracts Including Major Equipment Accountable Advance Spares and ALM184001JS001 Special Instructions for Repair and Overhaul Contractors.
 - i. Mercedes Benz Five Cylinder Diesel Engine Assembly (D5) Model OM 617.952, NSN 2815-21-896-1586, QAC Q;
 - ii. Mercedes Benz Six Cylinders Diesel Engine Assembly (D6) Model OM 603.950, NSN 2815-01-375-6838, QAC Q;
 - iii. Mercedes Benz Six Cylinders Diesel Engine Assembly (D6) Model OM 603.950, NSN 2815-01-293-5729, QAC Q; and
 - iv. Wooden engine crates
 - 1.1. The Contractor is responsible for procuring all replacement parts and materials, in support of the R&O services, unless specified hereinafter.
2. The Contractor must use the following publications in order to complete any task of the R&O services:
 - a) ALM184001JS001 Special Instructions for Repair and Overhaul Contractors
 - b) DLM008001SF001 Methods of Packaging
 - c) DLM008002SF001 Specification for Marking for Storage and Shipment
 - d) 5 cylinder engine (D5):
 - i. C30585000MY000 Parts Identification List
 - ii. C30585000MN000 Second and Third Line Maintenance Instructions
 - e) 6 cylinder engine (D6):
 - i. C32749000MY001 Spare Parts Catalogue
 - ii. C32749000MS002 All-terrain Carrier BV 206D6 Maintenance Manual Books 1 to 3
3. The Contractor, upon receiving an engine must perform the following steps as per the specifications and instructions in ALM184001JS001, DLM008001SF001, DLM008002SF001, C30585000MY000, C30585000MN000, C32749000MY001 and C32749000MS002:
 - 1) Disassemble the engine;
 - 2) Clean and Inspect the engine;
 - 3) Repair the engine;
 - 4) Re-assemble the engine;
 - 5) Check out and complete Run-in procedures;
 - 6) Preservation and Packaging, Storage and Transportation; and
 - 7) The Contractor will remove all external components of engine assembly and set them aside. The external components are listed in Annex A.1 for a D5 engine and Annex A.2 for a D6 engine. The SOW includes the refurbishing or replacement of all external components by the Contractor as per the maximum repair

cost (MRC) set for each individual component found in Annex A.3 and A.4 where applicable. The Contractor will repair and overhaul the engine as per para 3 (1 to 6), re-install all external components and test as per para 3.5. The Contractor must contact the TA if and when a non-serviceable part cannot be repaired or refurbished within the MRC nor acquired within the TAT of 90 days.

4. The Contractor is responsible for meeting a turnaround time (TAT) of 90 days for the equipment under this SOW. If the Contractor expects that the turnaround time cannot be met, the Contractor must contact the PA and TA 30 days prior to the end of the 90 days period.

5. The following tasks must also be performed for all engines:

5.1. Cleaning:

5.1.1. The Contractor must remove the old paint on external surfaces of housings and cases and clean the surfaces to ensure new paint adheres to all surfaces when the equipment is repainted. The engine assembly must be cleaned before disassembly. All of the components must be thoroughly cleaned before being inspected for condition or wear.

5.2. Threads and Inserts.

5.2.1. All threads and threaded ports must be repaired if damaged.

5.3. Mechanical/hydraulic:

5.3.1. All mechanical/hydraulic systems and defective components must be inspected and repaired or replaced as required. The following services must be included in the basic repair of engines:

- i. Machining of Engine Crank shaft / Cam shaft;
- ii. Verification of the cylinder block / make line bore;
- iii. Replacement of the cam bushing in the cylinder block;
- iv. Verification, polishing of the main crankshaft and connecting rod bearing replacement;
- v. Verification and bench test of all injectors;
- vi. Inspect and repair the turbocharger; and
- vii. Verify engine head and a special care for the valve seals.

5.4. Electrical:

5.4.1. All electrical components must be inspected and tested to meet the OEM Specs Qualification Test as per C30585000MN000 and C32749000MS002. Defective units must be replaced as required.

5.4.2. The starter and alternator must be inspected and tested for serviceability.

5.5. Assembly of the engine's external components:

5.5.1. Unless otherwise specified, the rebuilt engine assembly must be complete with the accessories mounted as specified in Annex A.1 for a D5 engine and A.2 for a D6 engine.

5.6. Openings must be sealed with plastic caps or plugs designed for that purpose. The standards of workmanship and material must be acceptable to the TA and the Quality Assurance Authority.

5.7. Mandatory Parts Replacements. For each engine rebuild, the old parts specified in Annex A.3 for a D5 engine and Annex A.4 for a D6 engine must be replaced with new or refurbished parts.

5.8. Painting:

5.8.1. When the rebuild is completed, the engine must be repainted with black engine paint. Exhaust manifolds must not be painted. Painting must not be initiated until engine running has been

completed.

5.8.2. During the painting process, the Contractor must ensure all exposed machine surfaces are left paint free, coated with a high temperature corrosive resistant compound applied to the surfaces.

5.8.3. 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 all electrical wiring, attached electrical components, sending units, vents, breathers and breather tubes (if made of plastic or rubber) are kept free of paint.

5.9. Run-In and Check Out:

5.9.1. The Contractor must provide a copy of test results for all overhauled engines. The test report must be as per specifications in C30585000MN000 for the D5 engine and C32749000MS002 for the D6 engine, and must also include, as a minimum, the following results:

- i. Oil pressure for each phase;
- ii. Oil temperature for each phase;
- iii. Coolant temperature for each phase;
- iv. Turbo boost pressure during the test;
- v. Power and RPM;
- vi. Fuel Consumption during the test;
- vii. Readjustments that were required; and
- viii. Observations during the test.

5.10. Packaging:

5.10.1. The engine must be packaged in the wooden crates as per instructions in ALM184001JS001, DLM008001SF001 and DLM008002SF001. The Contractor must ensure that the crates protect the contents from any possible hazards associated with shipping and storage. The crate must provide enough anchorage for the load to prevent load shifting, sliding, tilting and tipping during the shipment with having proper groove, wedge bed or inside blocking secured with metal or fiber straps.

5.10.2. The Contractor must inspect the condition of the crate prior to using it. If there are minor damages to the crate, the Contractor must complete the required repairs. The Contractor must contact the TA if a crate has major damages.

6. Substitution:

- 6.1. 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.
- 6.2. Any proposed amendment or change, to the part specification must be authorized in writing by the TA.
- 6.3. 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.
- 6.4. The Contractor must provide to the TA information required to evaluate and catalogue the proposed substitute parts including technical data, drawings and specifications.

7. Work authorized to exceed the Maximum Repair Cost (MRC):

- 7.1. For any work expected to exceed the MRC (ref: ALM184001JS001), the Contractor must not commence work prior to written TA approval. The MRC is \$35,000 for the D5 engine and the MRC is \$40,000 D6 engine.

8. Beyond Economic Repair (BER):

- 8.1. Engines that are approved by the TA to be BER, are considered Government Furnished Overhaul Spares (GFOS) and remain the property of the Department of National Defence. BER parts and assemblies in this contract must be disassembled, used when parts are found to be in serviceable condition, to repair items in para 1. These parts can be used to substitute any of the mandatory replacement parts as long as they are serviceable.

9. Quality Management:

9.1. Responsibility.

- 9.1.1. The Contractor will be responsible to provide the National Defence Quality Assurance Representative (NDQAR) with Engine Compression Test report and Dyno Test Result report required for Defence Resource Management Information System (DRMIS) data input relating to major components.

- 9.1.2. Unless otherwise specified in the Contract, the Contractor is responsible for all inspections as specified below.

9.2. Inspection:

- 9.2.1 The Contractor must comply with all elements of the SOW as specified herein. This must include the following essential elements:

- i. For the steps identified in para 3, each stage must be inspected to ensure specifications are met and all components are serviceable;
- ii. The wooden engine crates must be visually inspected for any damage such as cracks and broken internal parts;
- iii. Visual inspection must be done for all internal parts prior to re-assembly; and
- iv. All engines must be inspected for serviceability after overhaul.

- 9.2.2. All inspections must be coordinated with the NDQAR.

- 9.2.3. All inspection records must be kept at the Contractor's facility for the duration of the Contract.

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

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

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

- 11.1. The Contractor must assign an R&OM for this R&O Contract. The R&OM will manage all aspects of the work stated in this SOW. The R&OM will be the main interface with DND.

- 11.2. The Contractor must advise the TA and the PA of any changes to R&OM within 10 days of changes.

12. Government Supplied Material (GSM):

- 12.1. DND will not provide any GSM to the Contractor for any task performed under this SOW. It is the Contractor's responsibility to undertake all efforts to obtain and source all required components in due time to support the Engine R&O task. An exception will be made following the TA's approval in the cases where the Contractor is unable to obtain the parts and DND has the parts in inventory in order to meet the expected TAT of 90 days.

Annex A – BV206 Engine SOW
Dated: Feb 02, 2021

Annex A.1 – External components mounted on a D5 engine

Part	NSN	Part #
Water pump assembly complete with cab heater connections and thermostats	4320-01-175-5550	4537800755
Crankshaft drive pulley and all driven pulleys	3020-21-900-0196	2536825001
Oil filter housing	2940-01-168-4140	4537800729
Exhaust manifold	2815-01-166-6133	4537800707
Front engine mount	2815-21-896-1791	3537101801
Right engine mount	2510-21-898-2475	2536832801
Left engine mount	5340-21-898-4114	2536833801
Flywheel	2815-01-166-6010	6150301205
Intake manifold	2815-01-166-6134	4537800687
Head, Fuel filter	2910-01-166-5952	6150920208
Glow plug	2920-12-307-2502	0102173201
Belt tensioner	2920-01-168-1551	3539786801
Rocker arm cover, oil filler caps	2815-01-170-4899	4537800627
Temperature sending unit	2990-01-328-7265	1002-0487036
Oil pressure sending unit	5930-01-324-6218	1042-2490003
Crankcase oil dipstick	4710-01-166-5997	4537800607
Lifting eye	5340-01-183-8423	4537800386

Annex A – BV206 Engine SOW
Dated: Feb 02, 2021

Annex A.2 – External components mounted on a D6 engine

Part	NSN	Part #
Water pump assembly complete with cab heater connections and thermostats	2930-01-371-1438	94203991
Crankshaft drive pulley and all driven pulleys	3020-01-302-7649	94185991
Oil filter housing	2940-01-293-7124	93834991
Exhaust manifold	2940-01-293-7124	93834991
Front engine mount	2510-01-309-1001	91348991
Right bracket	5340-01-301-5210	90194991
Left bracket	5340-01-301-5211	90195991
Flywheel	2815-01-294-8610	93990991
Intake manifold	2815-01-302-3042	93940991
Filter holder	2910-01-312-6111	91540991
Glow plug	2920-01-306-6139	93983991
Belt tensioner	2920-01-302-6309	93947991
Rocker arm cover, oil filler caps	2815-01-302-2502	94128991
Temperature sending unit	6685-01-308-1994	92175991
Oil pressure sending unit	5930-01-354-2588	94646991
Crankcase oil dipstick	6680-01-302-6236	90340991
Lifting eye	5340-01-301-5208	93941991

Annex A.3 – Mandatory parts to be replaced as new or refurbished for a D5 engine

Part	NSN	Part #	PRICE/MCR
Turbocharger	2950-01-166-5624	4537800688	\$900.00
Piston STD	2815-01-176-4739	6170301017	NEW
Liners	2815-01-170-6756	6160111210	NEW
Con rod nut	5310-12-180-3064	6150380072	NEW
Flywheel bolts	5306-01-166-5799	4537800632	NEW
Tensioner	2815-12-180-0422	6150500916	NEW
Timing chain	3020-01-175-0454	0039976294	NEW
Nozzle fuel injector	2910-01-167-2081	0020170121	\$100.00
Fuel ret hose	4720-12-187-6043	4279970982	NEW
Water pump	4320-01-175-5550	4537800755	\$200.00
Con rod bolt	5307-01-176-4737	6150380271	NEW
Starter assembly	2920-01-174-1497	537769801	\$300.00
Fuel pump	2910-01-173-0327	4537800633	\$1400.00
Oil pump assembly complete with by-pass valve	2815-01-166-5634	4537800718	\$100.00

Annex A.4 – Mandatory parts to be replaced as new or refurbished for a D6 engine

Part	NSN	Part #	PRICE/MCR
Turbocharger	2950-01-295-0948 or 2950-12-323-1506	6030900480 or 6030900580	\$900.00
Piston	-	6020300017	NEW
Liners	-	6010110010	NEW
Rod bolts	5306-01-381-9850	1110380071	NEW
Flywheel bolts	5305-12-373-0022	0089900504	NEW
Tensioner	2990-01-293-8334	6010500711	NEW
Timing chain	3020-01-307-4761	0039975594	NEW
Injector	2910-01-295-3202	0030172921	\$100.00
Fuel ret hose	4720-01-302-2942	6040780581	NEW
Water pump	5920-20-A0U-6923	6052000820	\$200.00
Alternator	6115-01-358-0128	92193-991	\$350.00
Drive belt	3030-01-303-0066	94095-991	NEW
Block rail	-	6010520516	NEW
Oil pump assembly complete with by-pass valve	2815-01-304-6173	94015991	\$100.00
Starter assembly	5306-01-175-0424	93650991	\$300.00
Fuel pump	2910-01-294-8611	4538741638	\$1400.00