



NOTICE

This documentation has been reviewed by the technical authority 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.

ANNEX A – STATEMENT OF WORK

The BV206 fleet is obsolete and requires Repair and Overhaul services in order to maintain its capability for the Canadian Army and Royal Canadian Air Force for the next 7 years. The BV206 fleet will be replaced with a new fleet delivered by the Domestic Arctic Mobility Enhancement (DAME) Project by 2028. There are 2 different engines used by the BV206 vehicles, 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. DND will not provide any Government Supplied Materiel (GSM).
2. The Contractor must use the following publications in order to complete any task during 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.
 - f) References;
 - i. Hazardous Waste Disposal - Use SACC clause A9019C;
 - ii. Shipping Instructions (Department of National Defence) - Canadian-based Contractor; Use SACC subsection 5.D Delivery, Inspection and Acceptance clause D0037C Hazardous Waste Disposal - Use SACC clause A9019C.
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) Removal of all external components of engine assembly and place 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 refurbishment or replacement of all external components by the Contractor in accordance with 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 7), 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. Verification of the engine head and 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 and that they are 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 Mechanical Acceptance:

5.9.1. The Contractor must provide a copy of test results for all overhauled engines to the Technical Authority. 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. Coolant temperature for each phase;
- iii. Turbo boost pressure during the test;
- iv. RPM;
- v. Mandatory 3 hours run test per engine under different RPM and loads; testing must be performed to confirm performances are according to the OEM Specifications and to detect with Dye-LITE TP-3100 any leaks that have to be corrected prior to the delivery of engines to DND.
- vi. Leak free engine certificate. Engine to be free of oil and antifreeze leaks.
- vii. Readjustments that were required; and
- viii. Observations during the test;

5.10. Mechanical

5.10.1. Acceptance Procedure

Each repaired / overhauled component must undergo testing using an Acceptance Test Procedure. This test procedure is to include the engine being bench tested for a minimum of 3 hours. The contractor must provide this acceptance test procedure for review and approval by the TA, within 30 days of contract award. The Contractor must prepare a test report for each engine. A copy of the test report must be shipped with the equipment and a copy forwarded, electronically, to the TA. All completed equipment must be visually inspected for security of components and hazardous conditions. All deficiencies must be noted and repaired.

5.11. Packaging and Delivery:

PACKAGING - The Contractor must prepare the items for shipping listed in paragraph 1 in accordance with A-LM-007-100/AG-001, Supply Administration Manual.

a) Wood Packaging Materials

Use SACC clause D2025C - Reference: (<https://buyandsell.gc.ca/policy-andguidelines/standard->

acquisition-clauses-and-conditions-manual/5/D/D2025C/4) for items wherever a potential for the use of wood packaging materials may exist.

b) Palletization (For depot stock)

Use SACC clause D6010C - Reference: (<https://buyandsell.gc.ca/policy-andguidelines/standard-acquisition-clauses-and-conditions-manual/5/D/D6010C/1>)

5.11.1. 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 all hazards and exposure to the environmental elements 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.

5.11.2. 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.

5.11.3. Empty engine crates

In the event an engine is found to be beyond economical repair (BER) and the engine is to be scrapped. The contractor must return all unused engine crates that were provided with the engines to 25 CFSD Montreal. The contractor must inspect the shipping crates upon receipt for any damages or crate serviceability issues and make recommendation to the TA as required in the event a repair is required to return the crates to a serviceable state.

DELIVERY - Before final delivery of the items listed in paragraph 1, the Contractor must contact the following DND Inbound Logistics Coordination Center by facsimile or e-mail, to arrange for shipment, and provide the information detailed at paragraph 13 CONTACTS.

The Contractor must provide the following information to the DND Inbound Logistics Coordination Center when arranging for shipment:

- c) the Contract number;
- d) description of each item;
- e) the number of pieces and type of packaging (i.e., carton, crate, drum, skid, pallets);
- f) actual weight and dimensions of each piece type, including gross weight;

Following receipt of this information by DND, DND Inbound Logistics Coordination Center will provide the appropriate pickup instructions and coordination, which may include the requirement for specific consignee address labelling, and the marking of each piece with a Transportation Control Number.

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 before using the parts in the repair of engines. In order to be accepted, a certificate of compliance and associated data must be sent to the TA for approval prior to final installation.
- 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) and Disposal:

- 8.1. Beyond Economic Repair (BER) - 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 engines identified in para 1. These parts can be used to substitute any of the mandatory replacement parts as long as they are serviceable.
- 8.2. Disposal – In the event a part, sub-assembly of full assembly is reported as BER, the Contractor must dispose all parts or complete engine. The disposal of all related items must be done in accordance with the applicable local regulations and the relevant applicable laws. The Contractor must provide a written notice of confirmation or certificate of compliance once the disposal Work is completed. For each items disposal, the Contractor must complete, sign and return to the DND the Certificate of Destruction – Demilitarization Form no DND 2586-E.

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 leak test certificate 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 primary person to 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 available parts in inventory which will allow the contractor to meet the expected TAT of 90 days.

13. Contacts

13.1. Project Management

Jean-François Bisson, jeanfrancois.bisson@forces.gc.ca / Cell : 613-323-1609

13.2. Technical Authority

Claude Dugas, claudedugas@forces.gc.ca / Cell: 613-401-0549

13.3. Shipping Point of Contact

Inbound Logistics Coordination Center (ILCC)

- Telephone: 1-877-877-7423 (toll free)
- Facsimile: 1-877-877-7409 (toll free)
- E-mail: ILHQOttawa@forces.gc.ca

13.4. Contracting Authority

Josh Gibbons, josh.gibbons@forces.gc.ca / Tel: (819) 939-6329

13.5. Quality Assurance Authority

Claude Trepanier, claudetrepanier@forces.gc.ca / Tel: 819-939-8614

Annex A – BV206 Engine Repair & Overhaul Statement of Work
Dated: November 08, 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 Repair & Overhaul Statement of Work
Dated: November 08, 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 – BV206 Engine Repair & Overhaul Statement of Work
Dated: November 08, 2021

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 – BV206 Engine Repair & Overhaul Statement of Work
Dated: November 08, 2021

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 |