



TRANSNET ENGINEERING

PRODUCT AND SERVICES DEVELOPMENT

SPECIFICATION FOR THE SUPPLY AND DELIVERY OF DIESEL ENGINES FOR PORT HAULERS

Revision 03

Date of release

16 April 2024

PD_PRTS_DBN_SPEC_017

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1.0. INTRODUCTION

- 1.1. This specification details the supply and delivery of all the components detailed in the subsections of this document.
- 1.2. This specification states the minimum requirements of the components and connectors, and in no way absolves the Supplier from the responsibility for sound engineering practice.
- 1.3. This specification relates to the supply, delivery and commissioning of diesel engines, inclusive of subcomponents, to be fitted on Terberg Haulers.
- 1.4. Any person with the intention of supplying the components and subcomponents shall ensure that the information below is complied with. The information or requirements are binding and must be supplied by either the supplier in consultation with Transnet or Transnet Engineer and must ensure that mutual agreement is reached between the two parties (Supplier and Transnet) before the supply of machinery or material.

2.0. TECHNICAL REQUIREMENTS

Discussed in the sub-sections below are specifications and requirements of the engine which should be complied with for the purpose of this RFQ.

3.0. OPERATING ENVIRONMENT

The Components specified in this document will be exposed to the following ambient conditions:

- To be used in corrosive environment (sea level)
- Temperature: 5°C - 45°C
- Humidity: Frequently 100%
- Air Pollution: Heavy saline, dust laden and industrial fumes.

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4.0. GENERAL REQUIREMENTS

The information in this section shall be provided by the supplier with the quotation on the noted components in this document.

- The products names and models.
- The cost of the product, component or system.
- The supplier shall only provide components that are of proven design.
- All components must be dust proof and watertight, where applicable.
- Each component/product shall include a minimum of one (1) year warranty. Verifiable warranty documents to be furnished by supplier.
- The supplier shall supply the engine with the correct quantity of oil filled in the engine.
- The supplier shall commission each engine after TE fits the engine to the haulers and supply a commissioning certificate.
- The supplier is considered a subject matter expert and must make Transnet aware of any shortcomings of this specification.

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5.0. SPECIFIC REQUIREMENTS

5.1. Technical Requirements

The following table contains technical information of the equipment needed:

Item Name	Technical Requirements	Brand and Model
Diesel Engine	<ul style="list-style-type: none"> • Power: 170kW, @2200 rpm • Torque: 810 Nm, @1200-1600 rpm • Aspiration: Twin-scroll Turbocharged, intercooler • Compression Ratio: 18:1 • Bore: 102mm • Stroke: 130mm • Displacement: 6374cc • Injection: Direct • Boost: 1-1.6 atm • Inclusive of (but not limited to) all filters, air compressor, intake and exhaust manifolds, starting motor and alternator, oil pump, oil cooler and lines, bellhousing, water pump and fan with drive. (As shown in 5.1.1 – 5.1.3 below) • All associated clamps, pipes fittings etc. shall be supplied for the engine, inclusive of the banjo and fittings on the cooling system. • Inclusive of flex plate assembly. • Engine to be supplied with suitable pulleys for a 2020 mm belt to account for the fitment of the aircon compressor. Belt to be fitted and supplied with the engine. • TE will advise if the compatible engine ECU (inclusive of software specific to the Terberg Hauler) is required as part of the supply. Letter from Terberg confirming ECU software will be required if ECU is supplied. • Dimensions: 1078mm (l) x 645mm (w), 940mm (h) • Weight: 530kg (excluding fluids) • Suitable for mating to an Allison 3000 gearbox. • Supplier is to provide a dyno test report for all engines, showing compliance to performance characteristics of the engine model. • Suitable for the engine mounting points on the Terberg Haulers available to view at Transnet Engineering. • Once the engine and gearbox assembly is fitted to the hauler, the supplier shall perform the commissioning of the engine on the Terberg Hauler and provide a commissioning certificate. 	Mercedes Benz OM906LA-MB. No. 906.991 (170 kW Tier 3 / Stage 3A) Engine Complete

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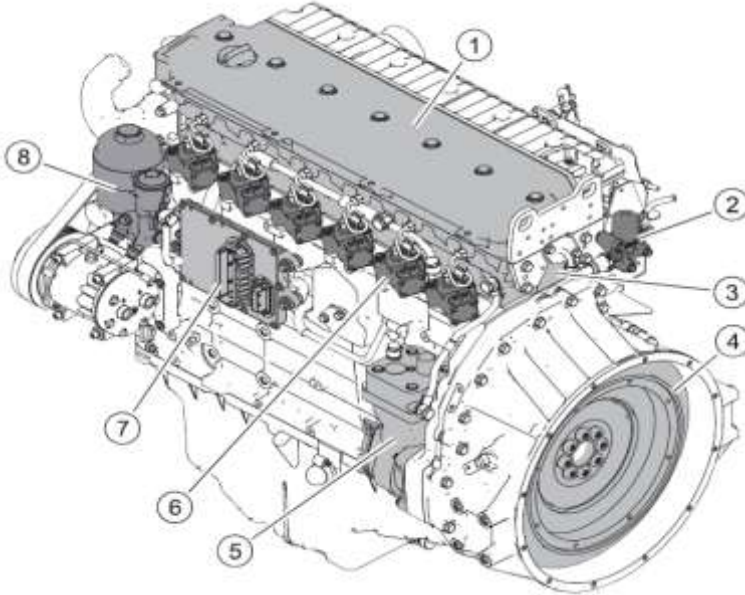
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- The engine shall be supplied including all of the parts below:

5.1.1.



No.	Item
1	Valve Cover
2	N/A
3	Cylinder Head
4	Flywheel
5	Compressor
6	Plug on pump
7	MR/PLD Control Unit (TE will advise if required)
8	Fuel filter

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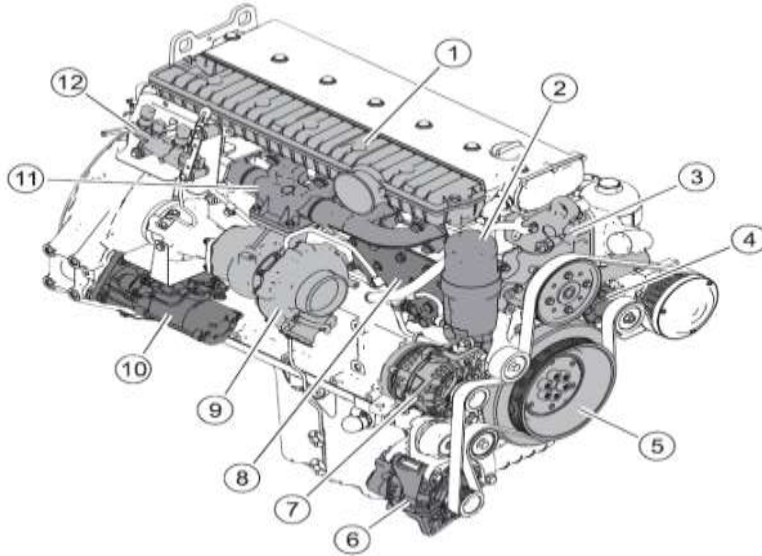
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5.1.2.



No.	Item
1	Intake housing
2	Oil filter housing
3	Coolant pump
4	Fuel pump
5	Oscillation damper
6	Alternator 24V
7	N/A
8	Oil cooler
9	Exhaust turbocharger
10	Electric starting motor
11	Exhaust manifold
12	N/A

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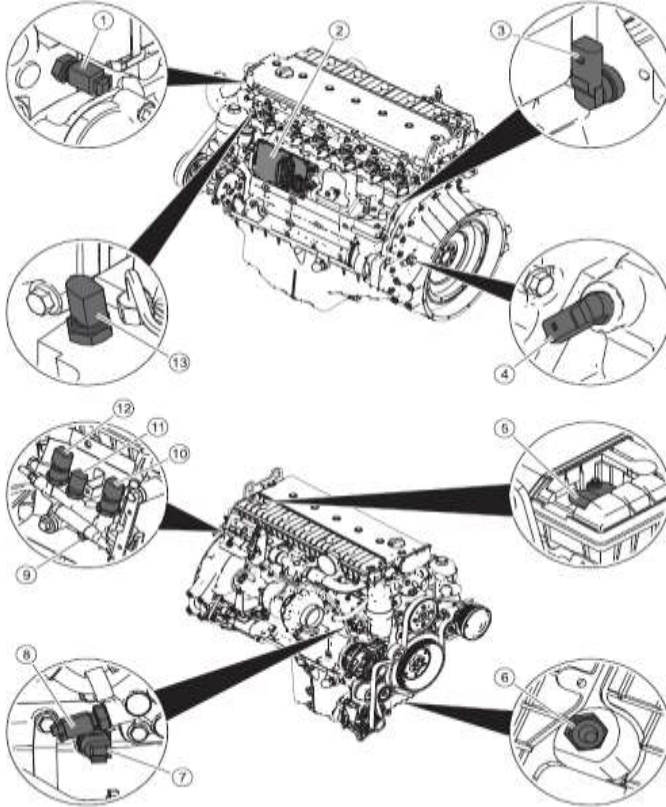
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5.1.3.



No	Item
1	Coolant temperature sensor
2	N/A
3	Camshaft position sensor
4	Crankshaft position sensor
5	Change air temperature and pressure sensor
6	Oil level sensor
7	Oil pressure sensor
8	Oil temperature sensor
9	Urea dosing valve (if applicable)
10	Dosing unit: air pressure sensor
11	Urea temperature sensor (if applicable)
12	Urea pressure sensor (if applicable)
13	Fuel temperature sensor

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6.0. DOCUMENTATION

The following documents shall be obtained for the procurement process.

- Itemized cost breakdown
- Brochure of the various components where applicable
- Drawings and manuals (service and parts manual)
- The product(s) must be supplied with a detailed maintenance manual to have sufficient information to allow terminal to capture maintenance schedules in terms of inspections, servicing and replacement of parts.
- The supplier shall provide documentation outlining the warranty of the product and what is covered.

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7.0. DOCUMENT AUTHORITIES

Approved by:

A handwritten signature in black ink, appearing to read "Govender", written over a horizontal line.

Theo Govender

Principal Engineer

Transnet Engineering

Date: 18.03.2024

Approved by:

A handwritten signature in black ink, appearing to read "Mary Khumalo", written over a horizontal line.

Mary Khumalo

Chief Engineer

Transnet Engineering

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