

NAVISTAR, INC.		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-9532
TITLE: Quality Requirements For Engine Assemblies		CURRENT REV No.: 1008 DATE: August 2010
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	SUPERSEDES: Rev D-1 - August 2001
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<i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i>		
Change Notice: Replaced "International Truck and Engine Corporation" with "Navistar, Inc." per corporate directive; added CEMS B-50 requirement; editorial changes.		
Reference:	Keywords: Engine Assemblies	

1.0 APPLICATION

This specification covers quality control requirements for purchased engine assemblies provided as completed units to NAVISTAR plants.

2.0 SCOPE

This specification covers the quality plan, painting, quality control, source approval, and shipping and identification requirements.

2.1 Restricted Chemical Substances

Effective JULY 1, 1997, all product supplied to the requirements of this specification must comply with the requirements of CEMS B-50.

3.0 REFERENCE DOCUMENTS

Unless otherwise specified the latest issue of all referenced standards shall apply. The following Specifications, standards, and regulations are referenced in this specification:

Quality System Standard ISO 9001 or TS-16949	NAVISTAR Manufacturing Standard MS-D-13
NAVISTAR Eng. Design STD A-16	CEMS B-50
CFR Title 29, Part 1910	TMS-9009

4.0 GENERAL REQUIREMENTS

Product supplied shall be suitable for its intended purpose.

4.1 Painting

Engine assemblies shall be supplied in a painted condition. Painted engines shall meet requirements of Class V per TMS-9009.

5.0 QUALITY

All engines supplied shall be delivered in a clean and dry condition. All engine induction system, accessory, and hose/tube/pipe openings shall be capped, plugged, or sealed to prevent contamination in

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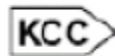
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shipment and storage prior to assembly. All fluids/oils used in the assembly and/or testing of the engines and which may remain or leave a residue in the engine must be compatible with NAVISTAR factory fill oils/fluids.

5.1 Quality Control Plan

A Quality Control Plan for this product will be established by mutual agreement between NAVISTAR and the supplier. The following six items, where applicable,* will be included in the control plan as dimensional features for management by statistical process control.**

1. Flywheel Pilot Bearing Bore Diameter
2. Turbo Air Outlet or Casting Flange, Diameter



3. Flywheel Clutch Mounting Holes, True Position
4. Engine Air Inlet Diameter
5. Coolant Inlet Diameter
6. Coolant Outlet Diameter

* Additional characteristics for inclusion in the control plan may be specified on the engineering drawing and/or purchase order.

** See NAVISTAR Engineering Design Standard A-16.

6.0 SOURCE APPROVAL AND QUALITY CONTROL

6.1 Supplier Requirements

All suppliers to NAVISTAR are required to be registered to ISO 9001 Quality System Requirements. NAVISTAR will also accept TS-16949 registration as long as the supplier can also fulfill all AIAG PPAP (Production Part Approval Process) documentation and approval requirements. Suppliers must maintain their certification with an accredited registrar and must furnish copies of registration certificates to their Corporate Buyer upon request.

6.2 Approval

Parts supplied against contracts or purchase orders citing this specification shall be equivalent in all respects to those samples which were approved by the purchaser. No changes in formulation or processing practices are permitted without approval. In the event that changes in material, properties, processing practices, construction, color, or labeling of the product are required, the supplier shall notify Materials Engineering at TDTC and Purchasing and Supplier Development of the proposed change(s). Test data indicating conformance to all requirements of this specification, test samples, and new or amended or updated Material Safety Data Sheet(s) (MSDS), in accordance with CFR Title 29, Part 1910 shall be submitted with the request for change.

6.3 Process Control

The supplier shall either perform and report results of tests on specific lots of parts produced using ISO 9001 or TS-16949 guidelines, or provide statistical evidence of the lot having been produced in a state of statistical control and with a process capable of providing all required properties. The part supplier and the plant metallurgist and/or the quality control manager of the using plant may determine testing and reporting requirements on specific products.

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