

INTERNATIONAL TRUCK AND ENGINE CORPORATION		
TMS (TRUCK MATERIAL SPECIFICATION)		NUMBER: TMS-9541
TITLE: Quality Requirements For Driveline Components		REVISION: C-1
WRITTEN/EDITED BY: Materials Engineering	APPROVED BY: Materials Engineering	DATE ISSUED: August 2001
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Reference:	Keywords: Driveline Component Quality	

1.0 APPLICATION

This specification covers quality control requirements for purchased driveline components such as end yokes and prop shaft assemblies provided as completed units to International plants.

2.0 SCOPE

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

3.0 REFERENCE DOCUMENTS

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

Quality System Standard QS-9000(ISO 9001)
INTERNATIONAL ISR Quality Standard
INTERNATIONAL Eng. Design STD. A-16
INTERNATIONAL TMS-9009
CFR 29, Part 1910

INTERNATIONAL Eng. Drw. AD-8127
INTERNATIONAL Eng. Drw. AD-8128
INTERNATIONAL Eng. Drw. AD-8134
INTERNATIONAL CEMS D-13

4.0 GENERAL REQUIREMENTS

4.1 Product supplied shall be suitable for its intended application.

4.2 Painting

Prop shafts and shaft assemblies shall be cleaned, pretreated with an iron phosphate conversion coating with a minimum coating weight of 35 mg/ft², and shall be prime painted. Prime paints used must be compatible for recoating with Grade -32 chassis paints used in International paint facilities. After painting, parts shall meet the requirements of Class IV as per TMS-9009. Individual parts, such as end yokes, shall be prime painted or sealed. Primers or sealers used must be compatible for recoating with Grade -32 chassis paints. After painting, parts shall meet the requirements of Class IV as per TMS-9009. Prop shafts and/or yokes, shall be masked to prevent transfer of paint onto machined mounting surfaces.

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5.0 QUALITY CONTROL PLAN

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



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|----------------------------|---|
| 1. Bearing cap Bolt Torque | 2. Prop Shaft Length |
| 3. Journal Cross Span | 4. Bearing O.D. |
| 5. End Yoke Nut Torque | 6. Lug Span |
| 7. Prop Shaft Balance | 8. Spline Diameter(Internal & External) |

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

** See International Engineering Design Standard A-16.

5.1 Quality

All propshafts supplied shall be delivered in a clean and dry condition. All propshafts shall be properly balanced and lubricated. Universal joint end-play shall not exceed 0.004 inch. Maximum allowable "out of phase" condition shall not exceed $\pm 2^\circ$. Parts supplied shall comply with applicable requirements as described on International Engineering Drawing AD-8127 and/or AD-8128 and/or AD-8134. All machined prop shaft mounting surfaces and machined yoke mounting surfaces shall be free of paint, dirt, or contamination, which could affect the achievement of the proper assembly torque values.

6.0 SOURCE APPROVAL AND QUALITY CONTROL

6.1 Supplier Requirements

Suppliers must conform to the requirements of the International IQR Quality Standard which includes conformance to the QS-9000 (ISO 9001) Quality System Standard. A mutually acceptable Quality Control Plan as described therein is required for source approval to the requirements of this specification.

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 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 International plant may determine testing and reporting requirements on specific products.

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