

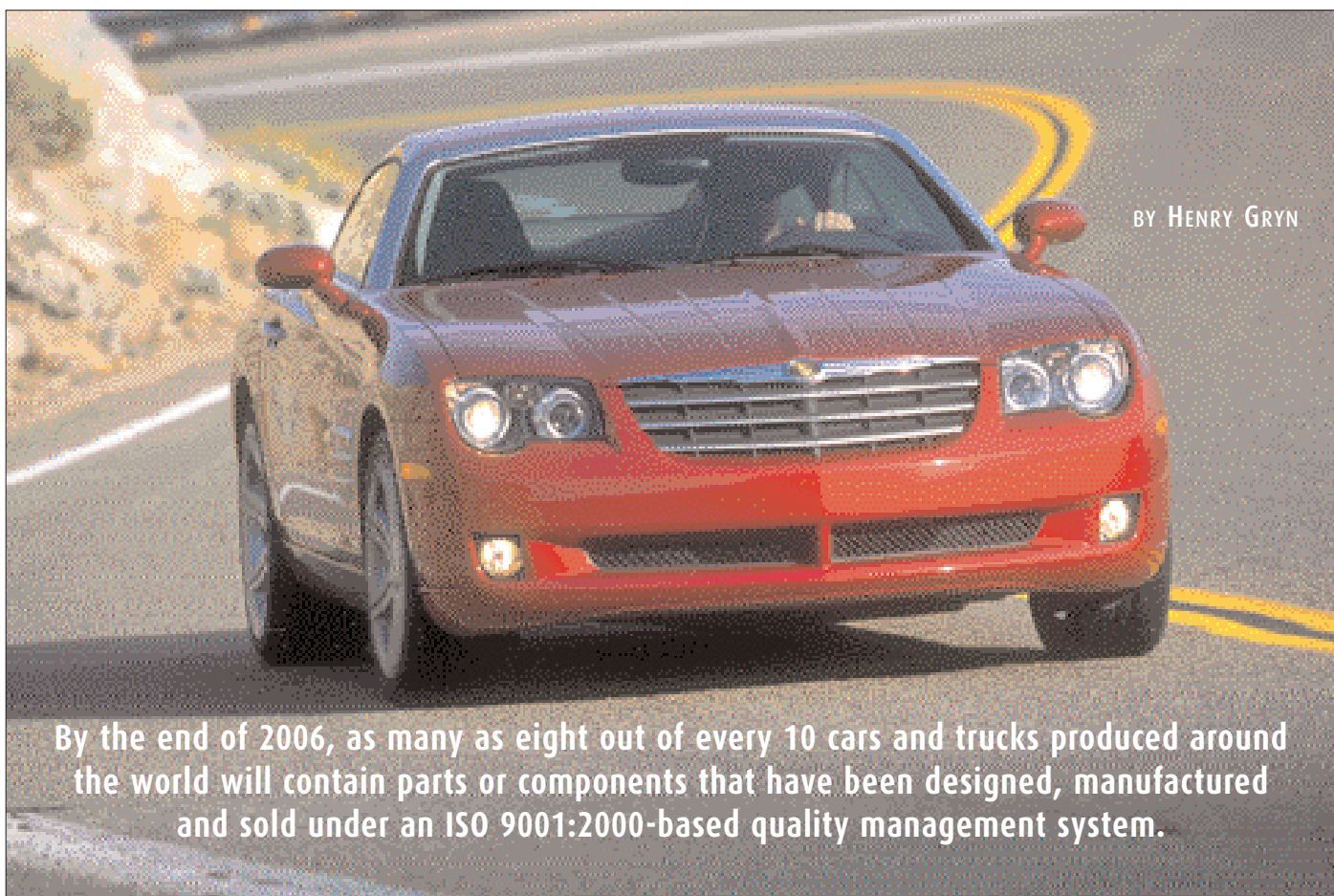
Management systems in



the automotive sector

# 'ISOmobile!'

Eight of every 10 cars to run on ISO 9001:2000 by 2006



BY HENRY GRYN

By the end of 2006, as many as eight out of every 10 cars and trucks produced around the world will contain parts or components that have been designed, manufactured and sold under an ISO 9001:2000-based quality management system.

Henry Gryn represents car maker DaimlerChrysler on the International Automotive Task Force (IATF), an ad hoc group of automotive manufacturers and their respective trade associations, formed to provide improved quality products to customers worldwide.

The author headed the IATF delegation which formed a partnership with ISO technical committee ISO/TC 176 and the Japanese Automobile Manufacturers Association (JAMA) to develop ISO/TS 16949:2002 in order to harmonize quality management requirements for the automotive sector worldwide.



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**F**or the first time in history, the highly competitive automotive industry has reached consensus through the International Automotive Task Force (IATF) on a common set of supplier quality requirements that were developed and published in March 2002 by ISO (International Organization for Standardization – [www.iso.org](http://www.iso.org)) as ISO/TS 16949:2002, *Quality management systems – Particular requirements for the application of ISO 9001:2000 for automotive production and relevant service part organizations*<sup>1)</sup>.

A technical specification, ISO/TS 16949:2002 incorporates the verbatim text of ISO 9001:2000 plus automotive-specific requirements in areas such as employee competence, awareness and training, design and development, production and service provision, control of monitoring and measuring devices and measurement, analysis and improvement.

Automotive manufacturers accounting for 80 % of vehicle sales around the world plan to migrate their suppliers to the new requirements by December 2006.

At the time of writing this article, the technical specification has been rolled out – or is in the process – throughout North and South America, Europe, Asia and Africa, including the following countries: Argentina, Australia, Austria, Brazil, China, France, Germany, India, Italy, Japan, Korea, Mexico, Spain, the United Kingdom and the United States.

We worked through ISO's consensus process and relied on ISO 9000 as a foundational document not only because it represents a global model for quality management systems, but also because the core requirements of ISO 9001:2000 are consistent with Original Equipment Manufacturer (OEM) – the automobile manufacturers – quality requirements in the automotive industry.

It was extremely helpful to use an ISO document as a starting point rather than having each OEM start with its own company-specific

requirements. We found the standard to be much improved over the 1994 edition in that it is geared toward the way a company does business, not whether you have “this paperwork and that paperwork”. It's more user friendly too. ISO 9001:2000 recognizes that each and every company is a little unique because each one does things in a different way.

Over the next three years, the transition to ISO/TS 16949:2002 will affect thousands of supplier companies in every corner of the globe. In North America, the “Big Three” automakers – DaimlerChrysler, Ford and General Motors – have all agreed to transition their suppliers that had previously been subject to the requirements of the third edition of QS-9000 to ISO/TS 16949:2002 no later than December 2006 – and possibly sooner on a company-by-company basis.

As you might expect, this decision will require considerable third-party auditing resources. Not wanting to interfere with the December 2003 deadline for companies to transition to ISO 9001:2000, the Big Three have entered into a special agreement with ISO, allowing the industry to continue to use the 1994 requirements of ISO 9000 in the QS-9000 document until December 2006.

## Supply base

Each automotive OEM subscribing member of the IATF will provide specific direction to its supply base in the coming months. To date, the suppliers that will be impacted by ISO/TS 16949 are primarily direct manufacturing suppliers to BMW, DaimlerChrysler, Fiat, Ford Motor Company, General Motors Corporation, PSA Peugeot Citroën, Renault and Volkswagen.

In Europe, Fiat requires compliance to ISO/TS 16949:2002 for new suppliers and renewals.

PSA Peugeot Citroën will no longer recognize certification to ISO/TS 16949:1999 and to the French automotive sector quality specification EAQF-1994 from 15 December 2003.

1) ISO/TS 16949:2002, *Quality management systems – Particular requirements for the application of ISO 9001:2000 for automotive production and relevant service part organizations*, costs 116 Swiss francs and is available from ISO national member institutes (listed with contact details on ISO's Web site: [www.iso.org](http://www.iso.org)) and from the ISO Central Secretariat ([sales@iso.org](mailto:sales@iso.org)).



From that date, certification to ISO/TS 16949:2002 will be the sole quality management system requirement for the first tier mass production suppliers to PSA Peugeot Citroën with transition deadlines of 1 July 2004 (for current EAQF-certified suppliers) and 15 December 2004 (for ISO/TS 16949:1999-certified suppliers).

Also in Europe, BMW requires compliance only, while Renault recently announced that its suppliers are required to be certified to ISO/TS 16949:2002 by 1 July 2004. Suppliers who are already registered to the first edition have until the end of 2004 to comply.

DaimlerChrysler, the world's number five automaker, has announced that it is requiring third-party certification of key suppliers to ISO/TS 16949:2002 by 1 July 2004.

Counting the European programmes, we estimate that the newly combined automotive market represents more than 30 000 third-party certificates. In comparison, about 22 000 third-party certificates have been issued throughout the world to QS-9000.

Having participated in the IATF meetings on behalf of Daimler Chrysler, I can say without hesitation that this technical specification is a value-adding document for the automotive sector. The process for completion was fast and involved participation by OEM's, suppliers and experts from ISO Technical Committee ISO 176, which is responsible for the ISO 9000 family of International Standards for quality management. We believe that this technical specification, when coupled with its accompanying registration/certification scheme, has significant benefits for the suppliers to whom it is applicable, and for subscribing OEM's.

First published in 1999, ISO/TS 16949 represents the collaborative efforts of not only the aforementioned OEM's, but also supplier trade organizations like the Automotive Industry Action Group (AIAG – USA, [www.aiag.org](http://www.aiag.org)), *Associazione Nazionale Fra Industrie Automobilistiche* (ANFIA –

Italy, [www.anfia.it](http://www.anfia.it)), *Fédération des Industries des Équipements pour Véhicules* (FIEV – France, [www.fiev.fr](http://www.fiev.fr)), Society of Motor Manufacturers and Traders (SMMT – United Kingdom, [www.smmt.co.uk](http://www.smmt.co.uk)) and *Verband der Automobilindustrie-Qualitätsmanagement Center* (VDA-QMC – Germany, [www.vda-qmc.de](http://www.vda-qmc.de)). The 2002 edition of ISO/TS 16949 also reflects participation by the Japan Automobile Manufacturers Association Inc. (JAMA, [www.japanauto.com](http://www.japanauto.com)).



## Robust

The involvement of OEM representatives, supplier trade organizations, JAMA and ISO TC 176 resulted in a robust automotive sector ISO-based document and certification scheme. The process was developed through a high level of expertise and in remarkably short order. The goals of common process development and implementation, auditable quality management system requirements and an ISO-released technical specification by early 2002 were clearly met.

So far, there are no planned supplements to ISO/TS 16949, such as the Tooling and Equipment supplement for QS-9000, but they are expected by the 2006 expiration of QS-9000. Meanwhile, those suppliers subject to supplements should continue with their present certifications.

In North America, we are trying to ramp down QS-9000 as we ramp up ISO/TS 16949:2002. The Supplier Quality Requirements Task Force,

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which administers QS-9000, has no plans or interest in updating QS-9000. This includes sanctioned interpretations and customer specifics.

Among the most visible changes for existing QS-9000 certificate holders will be the new process-based approach of auditors, a more rigorous approval process for third-party certification bodies and additional emphasis on meeting customer requirements as measured by delivered part quality performance, customer disruptions, delivery schedule performance, including incidents of premium freight and special status customer notifica-

tions related to quality or delivery issues.

Suppliers will be expected to take more responsibility for assuring that auditors have the proper tools to do better audits under the

new system. Every supplier must provide auditors with current customer ratings prior to each audit along with a list of customers, performance data from the previous 12-month period, a list of internal auditors and internal audit results.

Unlike some QS-9000 audits in the past, where auditors relied on checklists, ISO/TS 16949 auditors use checklists only to verify the completeness of their audits. They are expected to use control plans, failure mode effect analysis and part approval rates as a vehicle for their audits and to verify that customer specific requirements are being met. In the past, the lack of emphasis on customer specific requirements was a major concern of OEM's.

Another key difference from QS-9000 is in the area of scope. Only organizations that add value to the manufacturing process of a subscribing OEM may be awarded stand-alone certification to the new requirement. While functions such as

sales, purchasing and engineering may be listed as supporting organizations, they are not eligible for separate ISO/TS 16949 certification.

The second edition of ISO/TS 16949 permits the certification of assembly plants. As a result, elements of each of the Big Three are now pursuing certification.

### Correct past problems

We have been concerned about inconsistencies among third-party audit practices since the first edition of QS-9000 was rolled out in 1994. Consequently, many of the differences in the ISO/TS 16949 registration/certification process are intended to correct past problems that resulted in too many instances of questionable audits. The new document provides for continual improvement, while emphasizing defect prevention and the reduction of variation and waste in the supply chain.

Only registrars (certification bodies) contracted with one of the five regional IATF oversight offices established in France, Germany, Italy, the United Kingdom and the United States (see box "Managing the ISO/TS 16949 certification scheme") may issue IATF-recognized third-party registration certificates in accordance with ISO/TS 16949 to eligible supplier organizations.

IATF oversight offices have intentionally approved fewer registrars under ISO/TS 16949. We felt that the 174 registrars accredited to issue QS-9000 certificates were a bit more than we could manage comfortably.

In addition to IATF approval, certification bodies must also hold accreditation to issue ISO 9001:2000 certificates from a recognized national body in their country of origin.

As a rough estimate, in the case of QS-9000, the transition to ISO/TS 16949 can be expected to take anywhere from three to six months depending on the state of the existing QS-9000 system and the amount of resources applied to the effort.



**We estimate that the newly combined automotive market represents more than 30 000 third-party certificates**



We expect that ISO/TS 16949:2002 will become the common and unique basis for the automotive industry's quality management system requirements worldwide, gradually replacing the multiple national specifications now used by the sector (e.g. QS-9000, AVSQ, VDA6.1 and EAQF).

The second edition of ISO/TS 16949 also requires that direct product-manufacturing suppliers to the organization have their quality system in step with the organization seeking compliance to the technical specification. This essentially means the organization's direct product-manufacturing suppliers need to have in place a robust development programme aimed at achieving conformity with ISO/TS 16949.

There are a number of steps to be considered, including conformity to ISO 9001:2000 as the first, followed by registration to ISO 9001:2000, unless otherwise waived by the customer. Although there is no specific date for achievement, audit findings will likely be based on a defined plan and its effective implementation.

A binding interpretation of QS-9000, which became effective on 1 July 2001, contains a similar requirement for subcontractors but permits compliance to the 1994 edition of the QS-9000 standard, or registration to a current version of the ISO 9000 standard, with which many subcontractors already comply.

Each of the subscribing automotive manufacturers has agreed to accept ISO/TS 16949 certification from suppliers in lieu of potential additional second-party or third-party assessments. Each OEM reserves the right to also impose customer-specific requirements in addition to the ISO/TS 16949 requirements document. In the case of the Big Three, each of the car companies has its own customer-specific requirements.

One of the strengths of the new technical specification is that it is aligned with the process-based approach of ISO 9001:2000. We have enhanced the process approach in an

automotive context. This enhancement reflects consistency with the way automotive companies in the supply chain operate.

The focus on product realization and the process approach is the way we do business. I think there was legitimacy to the complaint that the quality system audit was too oriented to procedures based on an element-by-element assessment.

What we have here is an approach that sets up an audit trail based on the line of sight from the agreed-upon customer requirements to the operator instructions, and back to what was delivered to the customer. It is a better correlation with the way in which manufacturing product businesses operate.

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## Managing the ISO/TS 16949 certification scheme

To implement and manage the ISO/TS 16949 registration/certification scheme oversight activities, the IATF established the International Automotive Oversight Bureau (IAOB).

Based in Southfield, Michigan, USA, the IAOb manages and coordinates with four European regional offices to ensure consistency of ISO/TS 16949 certification and to support the IATF in the pursuit of global harmonization with other automotive manufacturers. The IAOb is also responsible for developing and maintaining a central IATF database of strategic information in support of the certification scheme.

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