

be integrated into an organization's philosophy, practices and business plans, rather than be seen as a separate business plan." □

### Something to declare?

The Australian Customs Service regularly provides news on the Customs internet site. One example:

Keen to ensure statistical accuracy by exporters when submitting details of goods destined for overseas, a vigilant Customs officer in Sydney spotted what was obviously a mistake. A freight forwarding company had reported to Customs that it was sending to New Zealand some 85 231 100 audio tapes.



Realizing that there are probably not that many tapes in existence in Australia and that it was unlikely that even the music-loving Kiwis would be ordering so many, the officer queried the figure and determined that the real number should have been 15 060.

Accurate export data is seen as highly important by Customs and the Federal Government because the data contributes to balance of payment figures, a key indicator for forecasting, monitoring and managing monetary, fiscal and trade policy.

*Seen on the Australian Customs service internet site:*

[www.customs.gov.au](http://www.customs.gov.au) – Something to declare issues – August 2001

# What are the prospects for ISO international standardization in the automobile sector?

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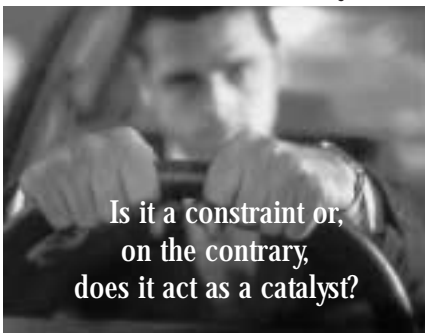
*At the start of this new millennium, the field of automobile standardization, including in particular technical committee ISO/TC 22, Road vehicles, accounts for a big share in the overall activity of ISO. Technical committee ISO/TC 22 alone is responsible for some 500 available International Standards and, for the year 2001 alone, the number of published standards will reach a record number for this committee of over 50 standards.*

*International standardization activities in the automotive sector go beyond the work of technical committee ISO/TC 22. They also involve fields such as steel (ISO/TC 17), plastics (ISO/TC 61), noise (ISO/TC 43) and road informatics (ISO/TC 204), etc. The good state of health of International standardization in the automobile sector is also good for ISO in general. It is therefore important to keep developments and prospects in this area under close scrutiny.*

It should be said from the outset that the prime objective is not to publish the greatest possible number of International Standards, but above all to serve the automobile industry and to foster international trade while providing solutions to issues of significance to the users: quality, comfort, safety, etc. In fact, if it were possible to do without the publication of some of the standards, they would never come into being.

The prospects for international standardization are therefore closely linked to a stable and consistent rate of development in that sector. We are well aware, of course, of the need to keep the resources required for financing international standardization under constant review. But let us also consider an aspect that is perhaps not so well known – and far more controversial.

### What is the role of international standardization in relation to innovation, research and development in the automotive industry?



This is the question we should really be asking, and the answer, based on experience in international standardization in that field, may well challenge some of the preconceptions that prevail in some circles.

### Research, innovation, development

New vehicles increasingly integrate the results of research and innovation to attract clients, to meet safety requirements, to preserve the environment, etc. The list of new equipment and new technologies used is amazingly substantial (see table opposite).

Several trends are emerging: it may be noted that new vehicles are much safer, use less fuel, pollute less, are less noisy, and more respectful of the environment. Progress achieved in these areas has been considerable.

Consumer taste seems to be leaning overwhelmingly in favour of the “leisure vehicle” combining both the qualities of a road car and the features of off-road vehicles. On the other hand, surprisingly enough, the electrical “urban car” – a silent and very moderately polluting vehicle for cities – is having a lot of trouble making any break-through on the market. The steps taken by administrations and local authorities have not managed to bolster its popularity. Hybrid vehicles, with dual engine systems, one being electrical, and acting as both a road car and an urban car, are still rare.

Novelties of significant interest to be expected in the future include, for instance, anti-collision systems, night vision (cyclists, pedestrians, animals), and fuel cell cars.

### Where international standardization comes in

It is important for an International Standard to be available at the right time, neither too soon, nor too late. Ideally, international standardization work should move in pace with the development of the product. This makes it possible to ensure that the existing International Standards will be met, for instance those dealing with electromagnetic compatibility (ISO 11451 and ISO 11452), noise (ISO 362), interchangeability, recycling and reuse (ISO/DIS 22628), etc. It is also important to be aware in good time of the regulators’ point of view. If the International Standard comes too soon, it can interfere with development. If it comes too late, the equipment may fail to comply with the standard or regulation when it reaches the market. Which could have dramatic consequences for the product.

A good approach would probably be to undertake the development of a draft standard at the product development



stage. That would enable liaison to be established with the bodies in charge of the standardization work and, where appropriate, the regulatory work.

Another important observation is that the International Standard should not be considered as a mere promotional tool, but rather as a means for avoiding technical barriers to trade.












In other words, the existence of an International Standard is no guarantee that the product will be produced and successfully marketed. The International Standard opens the door to the market. It would be unnatural to try to develop a standard “around a product” for purely commercial reasons (a situation that does occasionally happen).

But let us consider a few practical examples.

### Cruise control systems

Cruise control systems are one recent innovation. An International Standard (ISO 15622) is well advanced and is due for publication soon. It has been widely discussed in the framework of ISO (ISO/TC 204) and at regulatory level. And number of aspects relating to operation and safety have been discussed. Worldwide solutions have been retained, relating for instance to the behaviour of the system in the event of intensive braking, or the operation of the braking warning system.

## Indicative list of new equipment and new technologies

<b>Types of vehicles</b>		Road car (station wagon, saloon, sports) ● Off-road vehicles ● Leisure vehicles ● Transit vehicles (urban) ● Permitless vehicles
<b>Engine types</b>		Petrol ● Diesel ● Liquefied petroleum gas, compressed natural gas ● Hydrogen and mixture ● compressed air ● Electric, fuel cell ● Hybrids of the above
<b>Braking</b>		Antiskating ● Electronic braking, braking amplifier ● Emergency braking ● Infrared pedestrian and animal detection (night vision)
<b>Handling</b>		Active suspension ● Electronic stability control ● Rain sensor
<b>Driving</b>		Cruise controls: ● Set speed ● Speed of preceding vehicle ● Variable speed value
<b>Controls</b>		Electronic stability programme (ESP) ● Parking aid ● Dashboard displays ● Steering wheel controls
<b>Passive safety on collision</b>		Intelligent airbags ● Seat-belt preload devices ● Child restraint device anchorage (ISOFIX)
<b>Electronics</b>		On-board computer ● Electronic motor timing ● Ignition lock ● Recorder
<b>Lighting</b>		Gas discharge headlamps
<b>Comfort</b>		Electrical lumbar adjustment of seats ● Seat adjustment memory ● Heating seats ● Infrared-reflecting athermal window glass ● Electronic climate control
<b>Miscellaneous equipment</b>		Navigation system ● CD reader ● Hands-free telephone ● Refrigerator ● Electronic tollgate ● Television ● GPS

As with the development of the electronic braking system (dealt with in ISO/TC 22 standards), it proved possible to work in parallel at the “development”, the “international standardization” and the “regulatory” levels. This made it possible to type approve the vehicles and their equipment in a timely fashion.

Today, this development approach is broadly followed. Among other recent examples, one can mention ISOFIX, the anchorage system for child restraint devices (ISO 13216-1).

### Electric vehicles – standardization advances in parallel

In spite of strong pressure in favour of work on electric road vehicles, it is only in 2001 that the first International Standards became available (see page 25). Those standards (ISO 6469-1, 2 and 3 in particular) led to the establishment of regulatory provisions within the United Nations Economic Commission for Europe (UN/ECE) working party on vehicle construction (WP 29), thus enabling the type approval of such vehicles.

The door to the market was opened, but commercial success, one must admit, is not forthcoming, even though everyone agreed that this was the town car of the future. However, this should not come as too much of a surprise. In this case also, standardization work moves forward hand-in-hand with the development of the product (the electric vehicle). If the product's development is slow, there is no point in reaching premature standardization. It is enough to move step-by-step or in successive stages without forcing a decision.

ISO International Standards on electric road vehicles will be applied in the design of safer cars with better performance. In this instance, it is mainly researchers, innovators and developers who will benefit from the technical groundwork when designing future vehicles. This could mean a new generation of electric vehicles (subject to innovation, for instance in the area of energy storage) or perhaps,

more likely, fuel cell vehicles or hybrid vehicles.

The future of these vehicles as urban cars is at stake. ISO/TC 22 is already working towards these future developments, for instance by standardizing 42 V electrical circuits (ISO/WD 21848).

### Noise emitted by vehicles

Another area of intensive cooperation between ISO and UNECE/WP 29 is that of noise emitted by vehicles. The method for measuring noise in ISO 362:1998 (3<sup>rd</sup> edition) developed by ISO/TC 43, *Acoustics* was endorsed at the time in the European regulations, but today no longer meets the need and has to be revised. The days when it was enough to measure the maximum noise level emitted across the range of speeds are gone and the method is completely outdated. The main criticisms concern:



- poor representativeness of the noise producing the most annoyance (for example in town);
- the method, that does not enable the manufacturer to improve the vehicle in the correct way;
- the standard leaves room for limiting noise only for type approval (by using automatic gear shifts).

Car builders, acoustic experts, testing laboratories and governmental representatives have conducted numerous studies. Thanks to a close working relationship, ISO/TC 43/SC 1/WG 42 will be able to put forward very soon an already quite elaborate revision supported by a broad consensus, in particular among car manufacturers who need a valid standard for their developers in charge of silent vehicles.

### Equipment integration

Equipment design needs to be increasingly specific, for instance in order to be approved and fitted by the car builder. The development of standardization is dependent upon this trend.

One could mention, for example, the case of anti-theft devices and ignition locks for passenger cars (IEC 60839-10-1) and commercial vehicles (ISO/DIS 15763). Anti-theft systems used to be installed by the car accessory dealer. Those days are over and today's far more reliable ignition locking systems have made the added anti-theft accessory totally obsolete.



High-pressure gas discharge lamps need to be installed by specialists and can no longer be replaced by the car owner in the same way as an incandescent filament lamp.

All electronic equipment installed in a vehicle must meet the relevant automobile standards, particularly in regard to electromagnetic compatibility. Unsuitable electronic devices (telephone, computer, etc.) are liable to interfere with one or other of the vehicle's systems (engine speed, braking, airbags, etc.) and endanger the uninformed user. Artificial cardiac pacemakers are also being considered. All electrical equipment has to meet wave emission and wave immunity standards. Possible interference between vehicles or other wave-emitting sources should not be overlooked (such as overhead high-tension lines, electronic tollgates, etc.).

The set of International Standards published by ISO/TC 22 enables the vehicle manufacturers to subcontract on a broad

scale on the basis of well-defined specifications. In addition, technical specification ISO/TS 16949:1999 relating to equipment supplier quality systems provides a means for assessing automotive suppliers.

## Energy savings

In recent years, vehicles have benefited from a number of improvements aimed at reducing energy consumption. For example, the use of electronics in vehicle fuel supply systems has considerably improved performance. Another approach is to develop vehicles using alternative energy sources.

ISO/TC 22 has therefore just published six specific standards for electric vehicles. The completed work will serve as a reference in the design of hybrid or fuel cell vehicles.

For natural gas fuelled vehicles, 25 International Standards are available. The work is practically complete and will help to foster the use of such vehicles or to convert existing vehicles.

As to LPG (liquefied petroleum gas) fuelled vehicles, a number of drafts are being prepared on the basis of existing specifications within several organizations (AEGPL, CEN, UNECE/WP 29). Other types of engines are being studied, such as hydrogen fuelled vehicles (in cooperation between ISO/TC 22, ISO/TC 58, *Gas cylinders*, ISO TC 197, *Hydrogen technologies*, EIPH and WP 29).

## Standards help the economic health of the automobile sector

Prospects in regard to automotive standards admittedly depend upon the good economic health of that sector. However, as a corollary, for that health to be good, a significant technical standards base is required. These draft standards should be developed in parallel with the development of the vehicles and equipment. All technologies (subject to meeting the relevant standards) are in competition. All innovative technical solutions will make it possible to go towards greater safety, better respect of the environment, enhanced energy savings, etc.

While automobile makers today rely heavily on equipment manufacturers, this

rather uncertain economic circumstances. Technical committee ISO/TC 22, with the support of the automotive industry, is endeavouring to meet this demand with competence while at the same time maintaining close and fruitful relations with other international organizations, in particular those involved in the development of regulations.

At this point in time, prospects as far as the activity of ISO/TC 22 is concerned, in spite of the highly selective content of its work programme, are stronger than ever.

## ISO standards related to Electric road vehicles

**ISO 6469-1**, *Electric road vehicles – Safety specifications – Part 1: On-board electrical energy storage*

**ISO 6469-2**, *Electric road vehicles – Safety specifications – Part 2: Functional safety means and protection against failures*

**ISO 6469-3**, *Electric road vehicles – Safety specifications – Part 3: Protection of persons against electric hazards*

**ISO 8713**, *Electric road vehicles – Terminology*

**ISO/DIS 8714**, *Electric road vehicles – Reference energy consumption and range – Test procedures for passenger cars and light commercial vehicles*

**ISO 8715: 2001**, *Electric road vehicles – Road operating characteristics*

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equipment needs to meet increasingly stringent standards for a variety of performance, interface and design specifications. In reply to an essential question raised at the beginning of this article, we are witnessing both a diversification and an expansion of the needs in terms of research, innovation and development. This trend is necessary for the development of the automobile industry, which must imperatively adjust to the new market conditions and trends. In other words, no development can take place without adjustment. International standardization evolves in parallel and, so to speak, mirrors these developments.

Paradoxically, we are witnessing this strong demand for International Standards in the automobile sector in

