

Formula Zero

A strategy for reducing fatalities and injuries on
track and road

A policy statement by the
Fédération Internationale de l'Automobile



Contents

2	Foreword
3	Introduction
5	Safety in Motorsport
9	The Driver
13	The Car and Legislation
15	The Car and the Consumer
17	The Road
19	Conclusion
21	The FIA

Foreword



Safety is an absolute priority for the FIA.

As the governing body of motorsport and the representative of more than 100 million motor-ing consumers worldwide, it is clearly the FIA's responsibility to not only implement the most demanding safety standards achievable in racing, but to ensure that the safety lessons learned from the track can be, and are, applied to the road.

Every year 43,000 people are killed, and a further 1.6 million are injured on Europe's roads. The FIA is a driving force in the campaign to reduce these tragic deaths and injuries.

This document outlines an approach to road safety which has defined safety policy in motor-sport for more than twenty years. A similar and far reaching safety philosophy called Vision Zero was introduced on the road by the Swedish Government in 1997.

The FIA believes that adopting what we have called Formula Zero will have significant safety benefits and help to reduce the unacceptable number of deaths and injuries on our roads.

Max Mosley
FIA President

Introduction

In the EU 43,000 people are killed every year on our roads. More than 600,000 hospital admissions can be attributed to road accidents and it is estimated that road accident related injury treatments absorb as much as 10% of the EU's health care resources.

The EU safety budget is 8 million euros per annum. Using the European Commission's own costing methodology, referred to in their latest road safety communication as the '1 million euro principle' the total annual road safety budget is equal to the lives of 8 European citizens.

Increasingly governments have set national targets for the reduction of deaths and serious injuries. It is clear from the experience in individual EU countries that target setting is of vital importance in the reduction of deaths and casualties on our roads. Earlier this year the UK Government set the target of a 40% cut in road deaths over the next 10 years.

In Europe new road safety legislation and proactive target based road safety campaigning has helped to reduce road accident related fatalities and injuries despite increases in vehicle ownership. But safety levels vary considerably across the EU, road accidents account for a seven times higher death rate in the worst compared to the best performing EU member state. The FIA would encourage governments to go even further and establish targets as interim objectives in the pursuit of the strategic goal of zero fatalities.

SWEDEN'S VISION ZERO

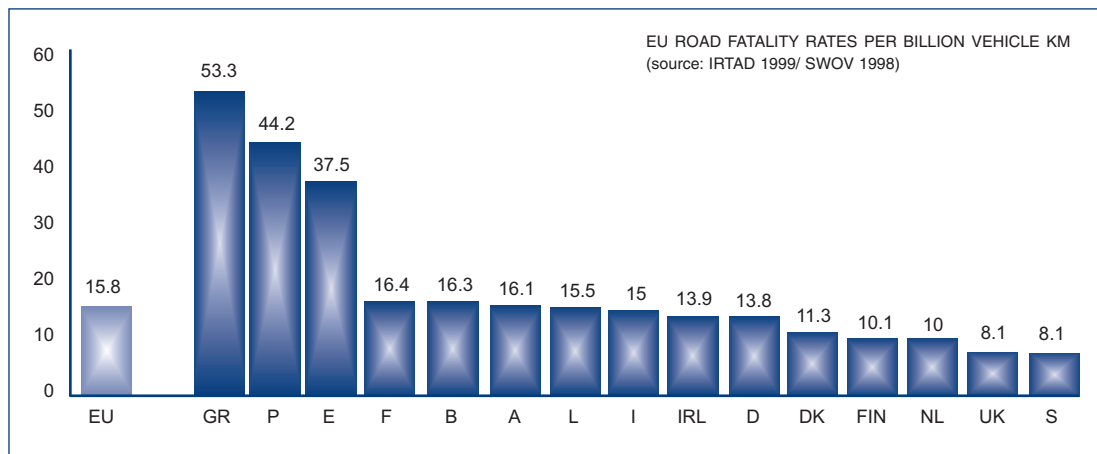
In Sweden in October 1997, the Riksdag introduced Vision Zero as a long term goal for road safety.

The Vision Zero approach emphasises that it is deaths and personal injuries which have to be eliminated, not that all accidents must be avoided. The ethical basis for this approach recognises that mistakes which are made on Sweden's roads should not lead to loss of life or serious injury. The road transport system must be designed so that people's mistakes do not necessarily have disastrous consequences.

The Vision Zero target in Sweden is based on shared responsibility for safety amongst 'system designers' and road users. System designers bear the ultimate responsibility for the structure and function of the road transport system, whilst road users have a duty to follow road traffic regulations, showing due care and consideration.

The main focus of Vision Zero is that:

- relevant decision-makers in both the public and private sectors are stimulated into taking increased responsibility for road traffic safety;
- relevant public and private organisations are stimulated into integrating consideration for road traffic safety in all parts of their activities that affect the road transport system;
- the general public are stimulated into demanding safe products and services;



- road users increase their interest in and opportunities for obeying road traffic regulations and showing consideration, judgement and responsibility on the roads

FORMULA ZERO

On the race track, in its role as the governing body of world motorsport, the FIA has implemented a constantly improving approach to safety standards.

This approach recognises that motorsport is inherently dangerous and that accidents will inevitably happen, but the fundamental starting point for the FIA's safety philosophy is the principle that no deaths or injuries on the track are acceptable.

This significant shift in emphasis has influenced more than twenty years of safety improvements in racing. The FIA believes that such a shift in emphasis when approaching safety on the road would have significant benefits.

The new approach would involve an entirely new way of looking at road safety, concentrating on how the whole of the road transport system can operate safely.

Such an approach would echo the aspirations of Sweden's pioneering approach to road safety management by:

- targeting the three essential variables, the driver, the car and the road in one integrated strategy;
- combining improved driver education with consumer pressure in encouraging accelerated improvements to car safety design as well as the mobilisation of 'user' pressure to encourage improvements to road infrastructure layout and design;
- harnessing the intergovernmental infrastructure of the EU to set clear and genuinely pan-European safety priorities co-ordinated centrally but delivered nationally;

Such an approach would be predicated on the assumption that no deaths or injuries on our roads are acceptable and that any percentage reduction target should be seen as an important but interim objective on the road to the long term goal of zero fatalities.

Safety in Motorsport

Motorsport is inherently dangerous. Accidents are expected to happen, but drivers and spectators justifiably expect a very high level of protection.

ACCIDENT HISTORY

In the 1960's one in every eight Formula One events resulted in a fatality or serious injury, with some years figures running as high as one race in every four. This unacceptably high level of accidents, serious injuries and fatalities gave rise to a driver led movement for greater safety in motorsport.

The effects of that driver led campaign and the new measures it began to establish was to reduce the number of accidents causing fatalities or serious injuries to an average of 1 in 40 accidents - a 5-fold improvement in less than 10 years.

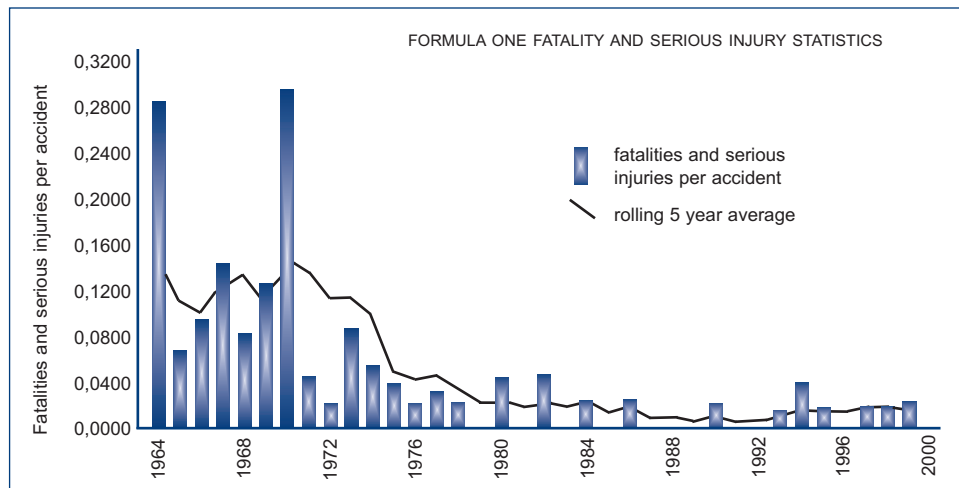
Between 1980 and 1992, a further steady decline in fatalities and serious injuries per accident resulted in the rate falling to less than 1 in 250 accidents - a further 6 fold reduction.

In 1992 the safety record of Formula One approached zero fatalities and serious injuries per accident, a level where individual incidents have a disproportionate effect on statistics.

In 1994, after 11 years without a single fatality in Grand Prix events two fatalities occurred during a single Grand Prix weekend. One of the tragic accidents involved triple World Champion Ayrton Senna.

The FIA immediately took wide-ranging steps to improve safety, including new regulations for car construction and circuit design, and initiated a research and development programme into improved standards for the future. It soon became clear that the only acceptable safety objective should be zero fatalities and serious injuries. The responsibility for safety then shifted from the driver and was handed jointly to the administration and to the 'system suppliers'.

The FIA has researched and made changes to vehicle design regulations, circuit design and circuit safety features, driver equipment, race control procedures, and medical intervention standards, to reduce fatalities and serious injuries per accident by over 90% since the early 1970s.



LESSONS FROM THE TRACK

The physics and physiology of an accident on the track are very similar to that of a road accident. Motorsport provides an excellent environment for vehicle safety research. Many motorsport accidents are recorded on video, data is recorded in on-board Accident Data Recorders and detailed post accident analysis is carried out.

Because every aspect of motor racing is controlled to such an extent, and the technology exists to enable accidents to be monitored and analysed in detail, it presents a rare opportunity to research automotive safety in the extreme.

Motorsport safety can show what is possible in terms of human protection and tolerance if there are no constraints on the level of technology applied or on the costs involved. While the lessons learned cannot always be directly or economically applied to the road system, much of the data and experience gathered is relevant.

The Technical and Sporting Regulations governing Formula One set the highest standards and provide a proving ground for safety measures prior to introduction in other international racing classes.

CIRCUITS

Closed-circuit racing tracks are licensed by the FIA according to the classes of cars to be raced on them. Circuits are inspected according to FIA Guidelines which lay down standards for all aspects of circuit construction. These standards are under constant review.

DRIVERS

Drivers are licensed to participate in racing classes according to experience. The licensing system also provides a means of sanctioning drivers for actions that are considered prejudicial to safety.

Standards for driver equipment, including helmets and overalls are set by the FIA and are regularly checked.

Safety in Motorsport

MEDICAL INTERVENTION

FIA medical regulations demand a high level of equipment and expertise. Staffing levels at circuit medical centres are a minimum of two consultant anaesthetists, a consultant general and orthopedic surgeon, a spinal or neurosurgeon and a burns specialist. Intensive resuscitation rooms and an operating theatre equipped to University Hospital standards are also a minimum requirement.

Rapid and expert intervention is a crucial element in the FIA's approach to medical standards.

At a circuit like Monaco where access is difficult three intervention cars backed up by 100 doctors and paramedics are needed to provide the level of intervention performance required by the FIA.

RACE CONTROL

A permanent FIA Race Director controls the running of major international motorsport events. Race Control is in radio contact with all medical facilities, race officials and marshals and is able to survey the whole track and Pit Lane via closed circuit television.

Through constant monitoring the Race Director is able to assess the seriousness of an accident and either stop other cars running or control their pace using the Safety Car. These measures enable medical intervention teams to gain unencumbered access to the scene of an accident.



SAFETY REGULATIONS

The FIA governs international motorsport through the World Motor Sport Council. This body is assisted by specialised sporting commissions and working groups. These groups involve the participation of experts from teams, circuits, the medical profession and organising bodies.

It is through the application of FIA rules and through a system of close co-operation between the FIA and all those involved in organising and participating in motorsport that fast responses to new safety issues are possible. Safety measures can, if necessary, be introduced within weeks.

In the decade from 1988 to 1998 there were 28 regulation changes to the Formula One structural rigidity crash test. In contrast, until 1998 the European Commission's crash test regulations for road cars had remained unaltered for 24 years.

A PARTNERSHIP APPROACH

A recent example of a successful partnership approach to improving safety can be seen in the new Head and Neck Support (HANS) driver protection system, developed jointly by the FIA, DaimlerChrysler and McLaren International.

Developed to offer additional driver protection in head-on and oblique frontal impacts, HANS is based on a rigid, collar-shaped carbon fibre shell which is held on to the upper body by the seatbelts and fastened to the helmet with tethers. In an accident, the head's extreme accelerated movements are minimised and dangerous neck strain is reduced by the stabilising effect of the system.

Increasingly the world's motor manufacturers see motorsport as a research medium not only for performance improvements but also for safety developments. The FIA is convinced that the lessons learned on the track can yield significant safety benefits on the road.

The Driver

In 95% of road accidents driver error is a contributing factor. But according to the Formula Zero approach changing driver behaviour through information, education and training should not be seen in isolation from the road environment in which this behaviour takes place.

Improving driver attitudes towards safety as well as improving vehicle safety design and road layout are vital elements in reducing road casualties.

The FIA has identified four priority areas of policy and campaign focus to improve driver safety over the next 10 years. The FIA believes that in each area of activity a specific and quantifiable target for changing driver behaviour should be set by member state governments.

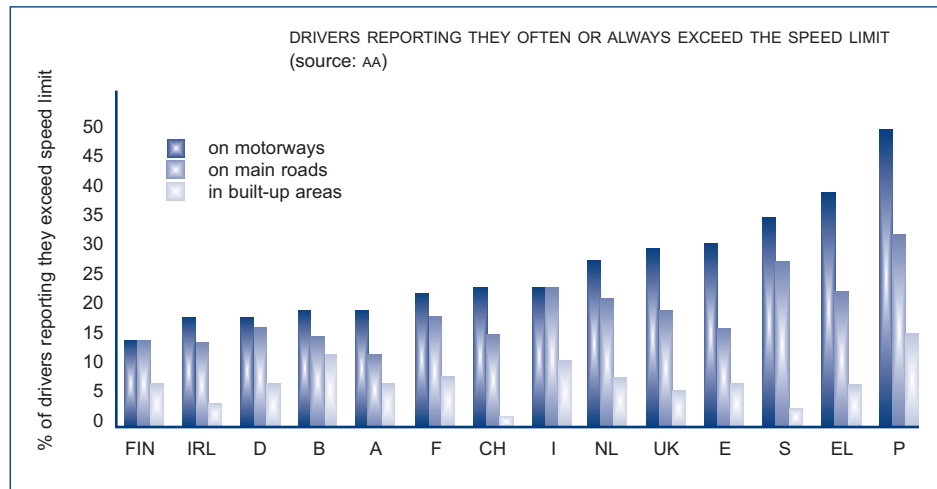
Road safety budgets should be increased on an automatic annual escalator until these targets are reached. Motorists have a right to expect such an investment in their safety in return for the taxes they pay.

DRIVER EDUCATION

Improving and extending driver education is of vital importance in the reduction of deaths and injuries on Europe's roads. FIA member organisations throughout the EU have taken a leading role in the provision of driver training.

In addition to the basic physical and theoretical skills involved in learning to drive the FIA believes that hazard perception skills and defensive driving techniques should form an intrinsic part of the driver training process. These skills should particularly recognise the needs of vulnerable road users such as pedestrians and cyclists.

The FIA believes that incentive programmes to encourage new and particularly young drivers, who are disproportionately at risk in road accidents, to progress to more advanced training should be introduced as a matter of urgency.



SEATBELTS

In 1998 the FIA and motorsport personalities took an active role in setting up the first genuinely pan-European road safety campaign. Backed by the European Commission, national governments and motoring organisations the '10 seconds' campaign was developed to raise awareness of the basic practical steps all drivers and passengers can take before the start of every car journey.

Perhaps the most important message of the campaign and the one which if heeded could save more than 7,000 lives every year focused on the wearing of seatbelts for every journey.

Accident statistics have shown conclusively that the seatbelt is the most important piece of life saving equipment available within a car. However seatbelt wearing rates for drivers and front seat passengers vary considerably across the EU. The risk to back seat passengers of not wearing a seatbelt is even less well understood with as many as 60% of EU motorists not belting up in the back.

The FIA believes that a long term pan-European campaign supported at a national level by each member state government should be established to promote the seatbelt message.

SPEED

Driving at an inappropriate speed for the conditions is one of the most common factors in road accidents. The wrong speed for the conditions significantly influences both the risks of a crash and the subsequent consequences of a crash.

Speed, particularly amongst young drivers, is also not clearly recognised as a hazard. This is compounded by the difference between a new drivers' subjective assessment of their own driving ability and the level of their ability in reality.

Forming responsible attitudes towards speed as part of the driver education process is vital but so is the need to ensure that speed limits and enforcement levels are set in a consistent and logical way.

Speed limits should aim to engender compliance, for this to occur a high level of awareness about the safety significance of a given limit must be established. Too frequently speed limits are set in an apparently arbitrary and fragmented manner.

Clearly an efficient enforcement system will always be needed but convincing the public of the importance and relevance of speed limits is an essential part of the Formula Zero strategy.

The Driver

The FIA believes that it is vital to publicise as widely as possible across the EU the risks of inappropriate speed and the reasons for speed limits. In addition to the road safety implications, changing driver attitudes to inappropriate speed can also have tangible environmental benefits (see AIT&FIA policy document 'Climate for Change, Global Warming and the Automobile').

The development and deployment of new technologies will have an increasingly positive effect on the management of Europe's road networks. Experiments with Variable Speed Limits (VSL), such as those on the M25 in the UK, have already proved to be a traffic management success which is also popular with motorists because of their tangible benefits.

Research into Intelligent Speed Adaption (ISA) is underway across the EU. The FIA believes that the targeted use of such technologies on the road could help reduce injuries and fatalities, particularly in urban areas.



DRINK AND DRUG DRIVING

Research from the UK Government has revealed that in 1989 only 3% of a random sample of road traffic accident fatalities were known to have been driving with drugs in their systems. In the latest figures, based on a three year DETR study, 18% of a random sample of fatalities had taken drugs - a six-fold increase.

Drug driving is a growing phenomena and one which police forces across the EU find themselves ill-equipped to deal with effectively. There are two main categories of drug taking and potential impairment, one is through the taking of illegal drugs and the other is via the taking of prescribed drugs consumed in ignorance of their potential impairing influence.

The FIA believes that an awareness campaign should be initiated to warn motorists of the dangers of driving whilst using illicit and prescription drugs. This campaign should run in parallel with the ongoing anti-drink drive messages which have been so successful in changing attitudes in some EU countries.

The FIA has consistently campaigned for the introduction of a three tier warning system for labelling medicinal drugs. This 'traffic light' system would give motorists a clear indication of the potential impairing effects of over-the-counter drugs:

Green: Safe or unlikely to produce an effect on driving

Amber: Possible minor effects, check instructions, may not be appropriate to drive

Red: Likely to produce adverse effects, do not drive

The Car and Legislation

Because we cannot always rely on driver behaviour it is impossible to prevent all crashes. Despite this we may be able to prevent fatalities and serious injuries in car crashes if the physical tolerance of the human body is used as one of the essential parameters in the overall design of a transport safety system.

In the early 1990's the FIA campaigned for tough new crash test standards to be introduced as a minimum passive safety design requirement. The FIA believes that new laws on pedestrian and child seat safety are now urgently required to fill the unacceptable gaps in legislation.

TOUGH CRASH TEST LEGISLATION

From October 1st 1998, all new car models sold in the EU had to meet new crashworthiness standards for front and side impacts. The new standards replaced a single front impact test that dated back to 1974.

This was one of the most significant improvements in road safety legislation in the last twenty years and this victory for EU motoring consumers was won by European motoring clubs with unanimous support from the European Parliament. This was the first time the EC set stricter crash tests standards than those set in the US.

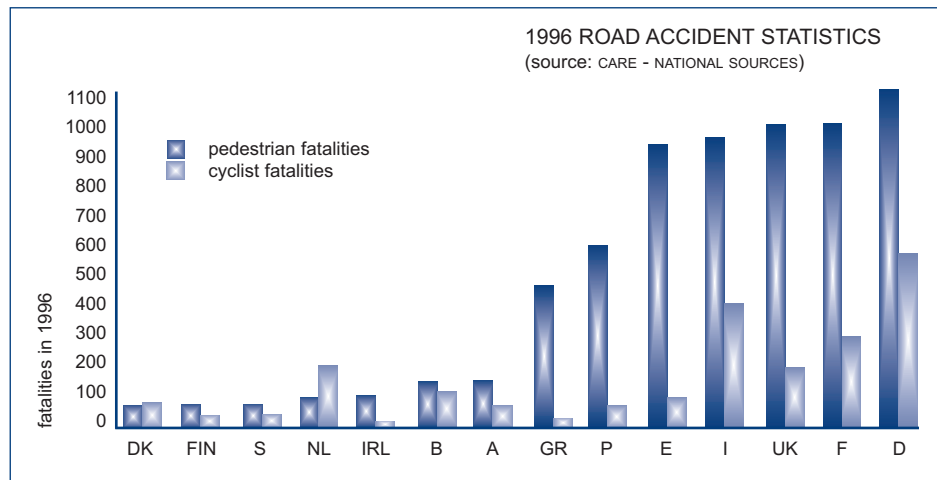
Frontal impact accidents cause 15,000 deaths each year in the EU. For more than twenty years all new production cars had been designed to pass a frontal crash test which did not replicate real car-to-car impacts.

The European Commission proposed a change to the out-dated test but the Commission's choice of a new test standard was less stringent than that campaigned for by independent road safety experts. The preferred test used an 'Offset Deformable Barrier', which simulated both the partial overlap of typical frontal collision and the real front structure of a typical car.

Side-impact collisions are the second most significant cause of death and serious injury in car accidents. As many as 6,500 people die in this type of accident each year on European roads. Despite the frequency and severity of side-impact collisions, manufacturers were under no statutory obligation to set a side-impact safety standard, and the European Commission's proposal for a new standard was not as stringent as that campaigned for by the FIA.

In March 1995 the European Parliament began to examine the Commission's draft Directives. Under the co-decision procedure the Parliament could table amendments to the draft Directive. At a public hearing held in Brussels the FIA presented its case.

To reinforce the argument for high safety standards, Grand Prix driver Gerhard Berger attended the hearing. Mr Berger drew parallels with the improved safety performance of Formula One racing cars, where as we have seen, tough new rules and technology, combined with rigorous crash testing, have dramatically reduced the number of fatal accidents.



Following this presentation and the campaign efforts of FIA member clubs the European Parliament responded positively to the case for more stringent standards. The Parliament's rapporteur on the legislation, Alan Donnelly MEP, put forward 44 pages of amendments to the draft directive based on the FIA's recommendations. The amendments were passed unanimously at first reading on 12 July 1995.

The introduction of new crash test legislation was the first objective in the FIA's long-term commitment to improve safety standards. The legislation provides a minimum statutory standard of safety for new cars but it was always the FIA's intention to encourage manufacturers to exceed these minimum requirements.

The FIA has identified two key areas in which legislation should be introduced as a matter of urgency:

PEDESTRIAN SAFETY

Every year more than 9,000 pedestrians and cyclists are killed on EU roads, more than 200,000 are seriously injured. Most cases occur in frontal collisions in urban areas at speeds of up to 40km/h.

The FIA believes that adopting the right legislative requirement for pedestrian protection is one of the most important road safety measures still to be addressed by the EU.

A European Commission proposal adopting the very latest research is expected. Improvements need to be introduced on the basis of realistic lead times but manufacturers should be encouraged to introduce measures ahead of legislation.

CHILD SAFETY

More than 70% of parents may be inadvertently putting their children's lives at risk because child seats are not properly fitted.

Different makes of child seat have a variety of fitting arrangements that can often lead to confusion and potentially lethal mistakes.

ISOFIX is a standardised system which is simple to use and offers potentially higher level of protection.

The FIA believes that new legislation should be introduced to make the ISOFIX system a mandatory requirement for all new cars sold in Europe.

The FIA also believes that more research should be undertaken into improving the effectiveness of child seat safety design in side impact collisions, particularly in relation to head injuries.

The Car and the Consumer

After a 24 year wait the European Community updated its crash test legislation. In contrast the European New Car Assessment Programme (Euro NCAP), in just three years, has encouraged some major car manufacturers to develop products that comfortably exceed the new legislative standards.

In the European Commission's latest communication on road safety Euro NCAP was identified as one of the Commission's six priorities for action.

According to the communication, Euro NCAP has accelerated the improvement of car safety design by five years. It has also proved to be the most cost effective programme for saving lives and preventing injuries on Europe's roads in which the European Commission has been involved.

THE PROGRAMME

Euro NCAP acts as a catalyst for improved vehicle safety in the EU. Backed by the European Commission, EU Governments and motoring and consumer organisations the programme offers consumers a reliable guide to the safety performance of some of the most popular cars sold in Europe.

By helping consumers to make an informed choice Euro NCAP aims to establish a genuine EU market for safety recognised by consumers and manufacturers alike.

The cars tested show that a broad range of manufacturers are producing safer cars and are responding rapidly to the test programme. Euro NCAP is delighted by this level of co-operation and such clear evidence of manufacturer efforts to make the cars they produce safer than ever before.

In addition to the front, side impact and pedestrian tests which form part of the existing test protocols the safety performance of child restraints are also assessed.

Recently Euro NCAP has moved forward on two fronts: a new test to assess the risk of a fatal head injury and the move from four to five star ratings for cars. These important changes set an additional challenge, which some car makers have already taken up, in meeting Euro NCAP's ever more demanding requirements.



HEAD PROTECTION

Accident patterns vary from country to country within Europe, but approximately a quarter of all serious-to-fatal injuries happen in side impact collisions. Many of these injuries occur when one car runs into the side of another. But in Germany over half such injuries occur when a car hits a pole or a tree.

To encourage manufacturers to fit head protection devices, a pole or head protection test has been added to the Euro NCAP protocols. Side impact airbags help to make this kind of crash survivable. They are also very effective in other types of side impact accidents such as being hit by another vehicle where the bonnet enters the window at head height.

In the new test, the car tested is propelled sideways at 18 mph into a rigid pole. The pole is relatively narrow, so there is major penetration into the side of the car. In an impact without the head protecting airbag, a driver's head could hit the pole with sufficient force to cause a fatal head injury.

Typically a head injury criterion of 5000 is possible, five times that which indicates the likelihood of serious brain injury. In contrast, the head injury criterion in these new crash tests with a head protection airbag is around 100 to 300, well below the injury reference value. A side impact airbag with head protection makes this kind of crash survivable despite the severity.

In acknowledgement of the benefits of head protection devices Euro NCAP will award additional points to those cars which can pass the new pole or head protection test.

As a consequence a five star Euro NCAP rating is now achievable. All Euro NCAP ratings will now be shown out of five stars instead of four stars as in the past.

Euro NCAP is recognised as having a major influence in improving passive safety design in Europe if not in the world. The programme clearly demonstrates that well-founded and targeted consumer information can raise product quality within the EU.

INCENTIVES FOR SAFETY

The European motoring organisations have played a significant role in improving safety legislation as well as raising consumer safety awareness. Manufacturers have worked hard to improve the active and passive safety performance of their vehicles. Governments must now match these efforts.

The FIA believes that consumers should be given the strongest incentive to buy the safest cars on the market. Significant safety benefits could be rapidly introduced to the EU vehicle parc if tax breaks were introduced by member state governments for the best performing cars in Euro NCAP.

The Road

Road design, maintenance and modernisation are central to the Formula Zero strategy. The benefits from raising the standards of drivers and improving the safety design of cars will be undermined if roads are unsafe or poorly maintained.

MOTORWAYS & TRUNK ROADS

Despite motorways typically carrying a quarter of car traffic and more than half of lorry traffic at high speeds, less than one in ten deaths or serious injuries occur on our fastest roads. Because of the high speeds travelled safety has long been a priority on motorways and trunk roads. But there is still room for improvement.

Technology has a major role to play in improving motorway safety. Many motorway accidents are caused by late awareness of slowed or stopped traffic ahead - the 'pile-up'. When an accident occurs on the Formula One track, the drivers approaching the incident have instant information relayed to them from trackside officials and from the teams, through direct cockpit communication, enabling them to slow down, stop or take evasive action. Similar early warning can work for public roads. Increasing the time available to drivers to slow down before an incident on a motorway, by providing real time roadside information, has been shown to reduce accidents by 18%.

Roadside telematics, and the development of future direct in-car communication systems, should be encouraged. Intelligent Transport Systems (ITS) that go beyond simply providing

information to control and direct traffic could also bring safety benefits. The variable speed limits introduced on Europe's busiest motorway, the M25 in Britain, were intended to combat congestion by smoothing traffic flow. But speed limit compliance, enforced by police cameras, has been high and excessive speeding has also been reduced. If research proves that accident figures have improved as a result, investment in wider use of variable speed limits must be a priority.

LOCAL ROADS

The vast majority of accidents take place on local roads, due not least to numerous junctions, traffic signals and crossings, obscured vision and unexpected hazards. But a key cause of traffic accidents can be the design of the road itself.

Many accidents occur as the result of inappropriate speed for the conditions. Despite speed limit signs, drivers will often drive at a speed they feel is suitable and safe for the road layout. Designing roads to take into account driver perception may involve 'slowing down' the visual impression of the road, greater use of speed signs, changing the colour of the road surface and using road markings (or removing them) to influence the judgement of motorists. Studies in the Netherlands suggest that a combination of these measures can have some effect on the driver's perception of acceptable speed, but more research is needed.



Too many stretches of road are still designed for an age when volume and speed of traffic was far lower. Updating the road geometry, examining positioning of junctions and signs and improving road surfaces and barriers is the only way to bring our road network into the twenty-first century.

LOW COST MEASURES

Low cost measures (LCM) can make a great difference to accident reduction for relatively low outlay. In the United Kingdom it is estimated that every £10 million spent on low cost schemes results in 24 fewer deaths or serious injuries, and brings a return on investment of almost £4 million (DETR).

MAINTENANCE AND RESURFACING

Regular road maintenance is also highly cost effective, and reduces the length of time that networks are disrupted. Poorly maintained roads can be dangerous, particularly to cyclists and motorcyclists. Uncollected debris or litter is hazardous to all road users, and can be symptomatic of a wider neglect of the road network.

Major maintenance, such as resurfacing, should provide the opportunity for reviewing the materials used on the road. Greater use of porous asphalt, for example, would reduce surface water and noise and improve both skid resistance and visibility.

ROUTES TO SAFETY

In their latest road safety communication the Commission identified accident 'black spot' management and the design of 'forgiving' roadsides as one of their six short and medium term priorities.

The FIA supports proposals for a recognised EU-wide road audit system. Highway authorities that fail in their public duty to provide safe roads, particularly once defects have been identified, should be named and shamed. The ability of the public to prove official liability for dangerous roads should also be examined.

The auditing of Europe's roads should be based on a three tier 'traffic light' system. The auditing should reflect what is designated as a 'collision severity index' in Sweden.

Green: Formula Zero standard

Amber: some risk of death or serious injury

Red: high risk of death or serious injury

The FIA believes that assessment methods based on the 'collision severity index' should be introduced across Europe. Ongoing EU wide testing along the lines of a European Road Assessment Programme (Euro RAP) should then be initiated as a priority to help reduce the proportion of Europe's roads which pose an unacceptable safety risk.

Conclusion

Formula Zero is a road safety philosophy which questions many of the assumptions made in existing approaches to road safety policy.

The FIA's starting point rejects the acceptability of deaths and injuries on our roads whilst recognising that accidents will inevitably happen. The focus in this document has been to address the consequences of accidents.

Many organisations and stakeholders - from motor manufacturers to motoring organisations - will play an important role in achieving Formula Zero's objectives. But the primary responsibility in developing and implementing effective road safety strategies must rest with our governments.

EU citizens now pay approximately 230 billion euros each year in motoring taxes. Yet only a tiny proportion of this revenue is re-invested in road safety activity.

If the Formula Zero approach is to be achieved EU governments must commit to increasing the money available for road safety.

It is clear from the conclusions of the latest European Commission communication on the EU road safety action programme that the cost of preventing accidents is much less than the economic cost of casualties and damage caused by them.

In line with this, and as an integral means of developing a Formula Zero approach, the FIA wants to see the introduction of road safety 'escalators',

annual above-inflation increases in the budget for safety by national governments and for genuinely pan-European initiatives by the European Commission.

If Formula Zero is to be successful and Sweden's 'Vision Zero' approach has already demonstrated what can be achieved, it is essential to put in place the political and financial commitment to realise what amounts to a road safety revolution.

In this document the FIA has focused on the three main parameters which must be addressed in the road transport system. Within each of the parameters, and as a starting point for future road safety initiatives, the FIA has also identified key areas for action.

THE DRIVER

For the driver the FIA believes that a more co-ordinated approach to safety campaigning and to improving driver behaviour should be adopted on a pan-European basis.

Priorities for action:

- Driver education and training
- Seat belt compliance
- Speed
- Drink and drug driving



THE CAR

In improving the safety performance of car design the FIA believes in a strategy which combines consumer information and fiscal incentives to encourage the scrappage of older cars and the purchase of newer, safer models. This renewal of the car parc will bring benefits in terms of air quality and CO₂ reductions as well as in safety performance.

When the various stakeholders in the automotive sector work together to promote safety, the results can be impressive. Euro NCAP, as previously explained, has led to dramatic improvements in car design above and beyond what legislation alone has achieved.

Through the marketing strategies of those car manufacturers that have chosen to capitalise on the success in the crash test programme, the road safety message has reached millions through advertising. The communications success of Euro NCAP could provide a model for future pan-European safety campaigning.

To date five member state governments and the European Commission financially support the Euro NCAP programme. The FIA would encourage other EU governments to participate financially in the programme to accelerate the substantial benefits of the programme even further.

Priorities for action:

- Accelerating improvements to occupant safety design
- Accelerating improvements to pedestrian safety design
- Accelerating improvements to child seat safety design

THE ROAD

Addressing the quality and safety design of Europe's roads infrastructure is a vital aspect of road safety policy. In the Formula Zero approach improved road layout and safety designs must be combined with pedestrian friendly vehicle design if we are to reduce pedestrian deaths and injuries.

Priorities for action:

- EU-wide road audit
- European Road Assessment Programme (Euro RAP)

If Formula Zero is to be successful it must inform the work of all those who have an impact on road safety: car-makers, legislators, road designers and, of course, drivers themselves.

But ultimately it is up to governments to provide and to facilitate the financial and political support for a road safety strategy fit for the new century.

The FIA believes *that* road safety strategy is Formula Zero.

The FIA



Established in 1904 the FIA represents the interests of motoring organisations and motorists throughout the world. The FIA is also the governing body of world motorsport. This combination of road and track gives the FIA a unique responsibility as an independent world body concerned with a wide range of automotive, motoring and mobility issues.

The FIA is a non-profit making association which brings together some 150 national motoring organisations on five continents. Its member clubs represent over 100 million motorists and their families. This is a powerful mandate which the FIA is proud to defend. On issues such as safety, mobility, the environment and consumer protection the FIA actively promotes and protects the interests of motorists at the United Nations, within the European Union and other international bodies.

In the EU the FIA has established a joint Bureau with its sister organisation the AIT to represent the interests of more than forty million motoring consumers.

The European Bureau's staff of campaigns, policy and technical experts monitor the work of the EU institutions and co-ordinate media campaigning and political activity in member motoring organisations across the European Union.

Expert working groups of AIT & FIA club specialists in legal and consumer affairs, tourism and technical policy are brought together by the Bureau to consider the latest EU legislative issues and to develop common policies for the benefit of motoring consumers in all fifteen member states.

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Front cover photograph - Michael Cooper / Allsport

Jacques Villeneuve crashes at Eau Rouge during the qualifying for the Belgian Formula One Grand Prix at the Spa-Francorchamps circuit, 28 August 1999

