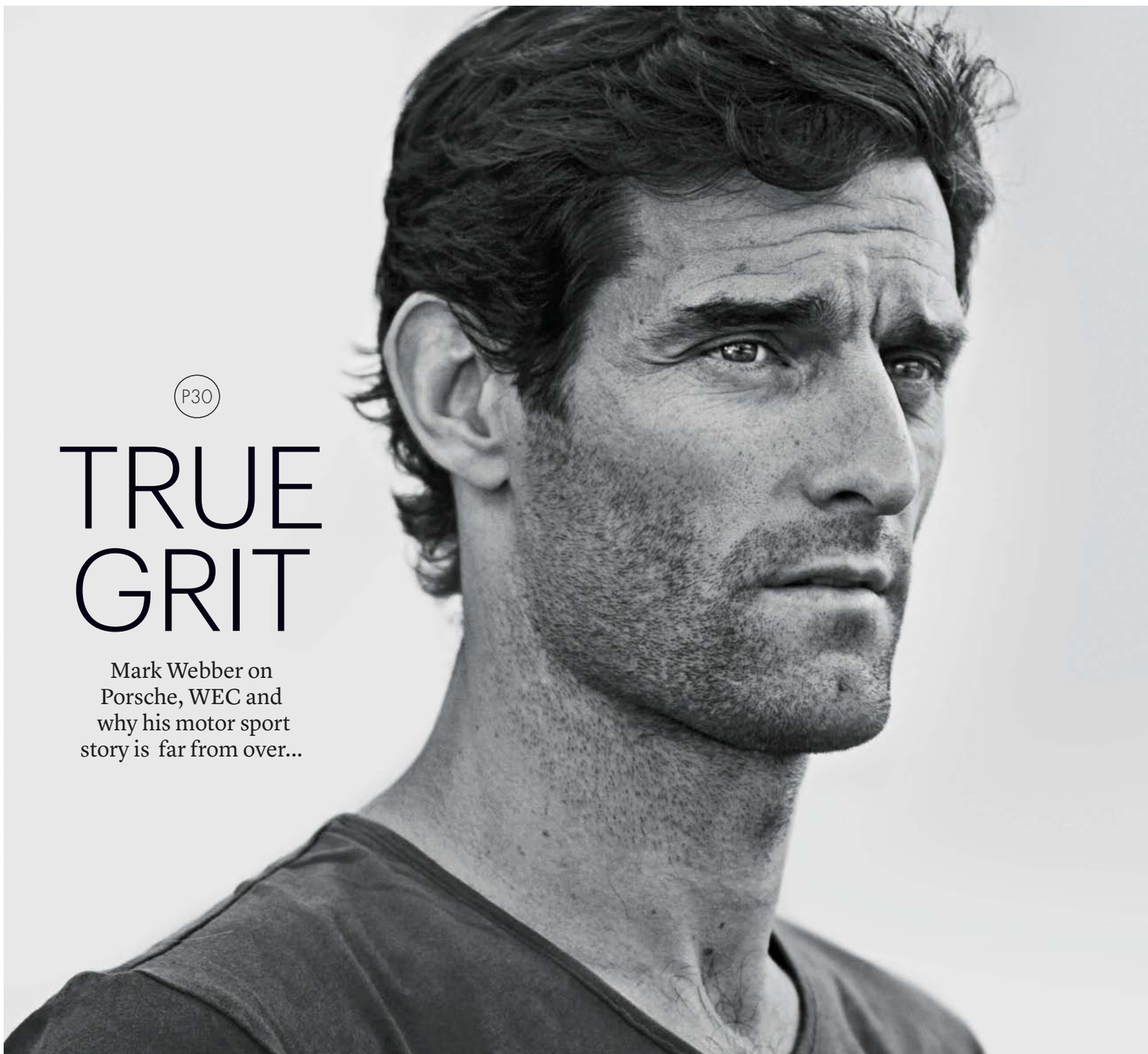
INTERNATIONAL JOURNAL
OF THE FIA: ISSUE #5

AUTO



P30

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Mark Webber on Porsche, WEC and why his motor sport story is far from over...

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ISSUE #5

AUTO

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THE FIA

The Fédération Internationale de l'Automobile is the governing body of world motor sport and the federation of the world's leading motoring organisations. Founded in 1904, it brings together 236 national motoring and sporting organisations from over 135 countries, representing millions of motorists worldwide. In motor sport, it administers the rules and regulations for all international four-wheel sport, including the FIA Formula One World Championship and FIA World Rally Championship.

THE FIA FOUNDATION

The FIA Foundation is an independent UK registered charity that supports an international programme of activities promoting road safety, the environment and sustainable mobility. It was established in 2001 with a donation of $300 million from the FIA and is governed by a Board of Trustees. Among its activities, the Foundation participates in various UN road safety and environment related partnerships and is a member of the UN Global Road Safety Collaboration.

THE FIA INSTITUTE

The FIA Institute is an international not-for-profit organisation that develops and improves motor sport safety and sustainability. It leads projects that encourage the rapid development of new and improved safety technologies; that facilitate higher standards of education and training; and that raise awareness of safety and sustainability issues. The Institute was established in October 2004 and funds its activities through annual grants from the FIA Foundation.

DYNAMIC DUOS

Sometimes motor racing partnerships just click: think Jim Clark and Lotus or Michael Schumacher and Ferrari. Now, a new partnership has the world of motor sport eager with anticipation – that of Mark Webber and Porsche.

The potential embodied by the coming together of one of Formula One's toughest (and most popular) competitors and the legendary sportscar racing marque to take on the FIA World Endurance Championship makes for a fascinating story. AUTO spoke to the Australian driver and the men behind Porsche's 2014 challenger to see how the project is developing.

Another of motor sport's great partnerships is set to be renewed in 2015, when Honda will attempt to revive its grand prix glory years by once again teaming up with McLaren. As part of a special Japan report AUTO examines how new FIA regulations sparked Honda's latest F1 adventure.

Elsewhere, Ferrari and the FIA Institute have joined forces to deal with an important racing safety issue – the dangers of missile-like debris in motor sport. We went behind the scenes at a military jet test centre to see how researchers are working to improve driver protection.

Safety for pedestrians is a central theme of the Long Short Walk campaign, led by the Mandela family in partnership with the FIA Foundation. The campaign recently visited the UN General Assembly to lobby for road safety's inclusion in the body's Post-2015 Development Goals. AUTO was there to document the results.

AUTO / CUE

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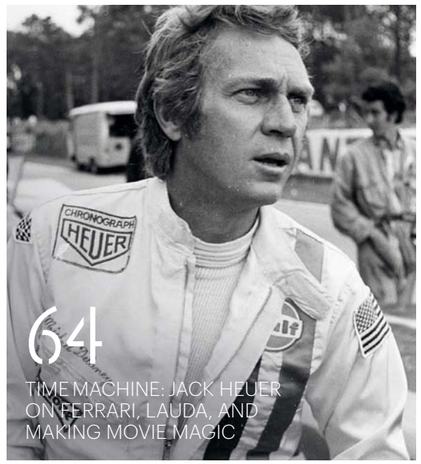

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Formula One

FEELING THE FOURTH

Such is the volume of Formula One records that have tumbled Sebastian Vettel's way since he made his grand prix debut at the wheel of a BMW-Sauber at the 2007 United States Grand Prix that when his name and the word achievement are used in conjunction, eyes tend to glaze over.

Youngest points scorer, youngest pole position winner, youngest race winner, champion, double and triple title winner – it's a Schumacher-like litany of smashed records and jaw-dropping benchmarks. But out of all the landmarks recorded in Vettel's relatively short career, the securing of his fourth successive F1 title at October's Indian Grand Prix stands out as something genuinely special.

In taking his 10th win of the 2013 season, the 26-year-old Red Bull Racing driver became just the fourth driver in the 63-year history of the sport to take four titles and he's certainly the youngest to do so.

Juan Manuel Fangio was a relatively senior 45 when he took his fourth crown in 1956, Alain Prost was 38 in his final title year of 1993 and even Vettel's mentor Michael Schumacher was six years older than the Red Bull driver when he claimed his fourth championship in 2001. The only question now is just how many more pages will need to be stitched into the record books for Vettel.

CLASS ACT
At the Indian GP, Sebastian Vettel became just the fourth driver in F1 history to win four titles and only the third to rack up four in a row. The Red Bull Racing star took a remarkable sixth win on the trot to make his 2013 points lead unassailable.

PHOTOGRAPHY: VLADIMIR RYS / INFINITI RED BULL RACING

Sustainability

ELECTRA GLIDER

First came the Delta Wing, then the Zero Emission On Demand Racing Car (ZEOD RC). Now Nissan is bringing these concepts to the road with the extravagantly-titled BladeGlider.

But this is more than a cutting-edge concept. The BladeGlider shares sustainable engineering values with both Nissan LEAF – the best-selling EV in history – and the ZEOD RC, which will make its debut at next year's Le Mans 24-Hour race.

Nissan sees it as both a proposal for the future direction of its electric vehicle development and the prototype of an upcoming production vehicle.

The triangular shape is all-important. It has such a low drag coefficient that it uses much less energy to achieve the same performance as a conventional car using the same powerplant.

That was certainly the case for the DeltaWing, on which BladeGlider's shape is based. The DeltaWing might have only lasted six hours at Le Mans in 2012 before retiring following an accident but it made its distance using half the fuel of its competitors and running twice the distance on a set of tyres.

This form lends itself well to electric cars, where energy storage is limited and range anxiety is high. With its narrow, one metre-wide lightweight front track, and broad, stable rear track, the architecture all boils down to aerodynamics and balance.

"I think the excitement of the racing car should be mirrored in the excitement of driving the road car," says Ben Bowlby, director of Nissan Motorsport Innovation and inventor of the DeltaWing concept. "There are elements we can bring from the race track to make these future road cars more exciting, more fulfilling and give greater driving pleasure."

DELTA FORCE

Bringing the BladeGlider's front wheels close together reduces drag and aids manoeuvrability, whilst aerodynamic downforce is created by the highly rigid yet lightweight carbon-fibre underbody, hence the lack of drag-inducing wings.

AUTO NEWS

As the year draws to a close we look at the latest news from the FIA's Formula E electric racing championship, find out about new awards at the federation's annual prize-giving, discover why the UN is calling for more funding for road safety and reveal why one Japanese motor manufacturer is turning to the animal kingdom for help with traffic

F1 LEGENDS JOIN ROSTER OF FORMULA E TEAMS

The line-up for next year's inaugural FIA Formula E Championship has been given added lustre with the announcement that four-time Formula One champion Alain Prost and Japanese former grand prix star Aguri Suzuki are to head up teams in the series.

Prost will join forces with Jean-Paul Driot, founder of GP2 and Formula Renault 3.5 team Dams, to form a new team called e.dams.

"I am very happy to be a part of the Formula E adventure," said Prost, whose last team ownership experience was with his Prost Grand Prix Formula One team from 1997 to 2002. "Being able to participate in the development of this new technology, which is 100 per cent electric, is extremely motivating."

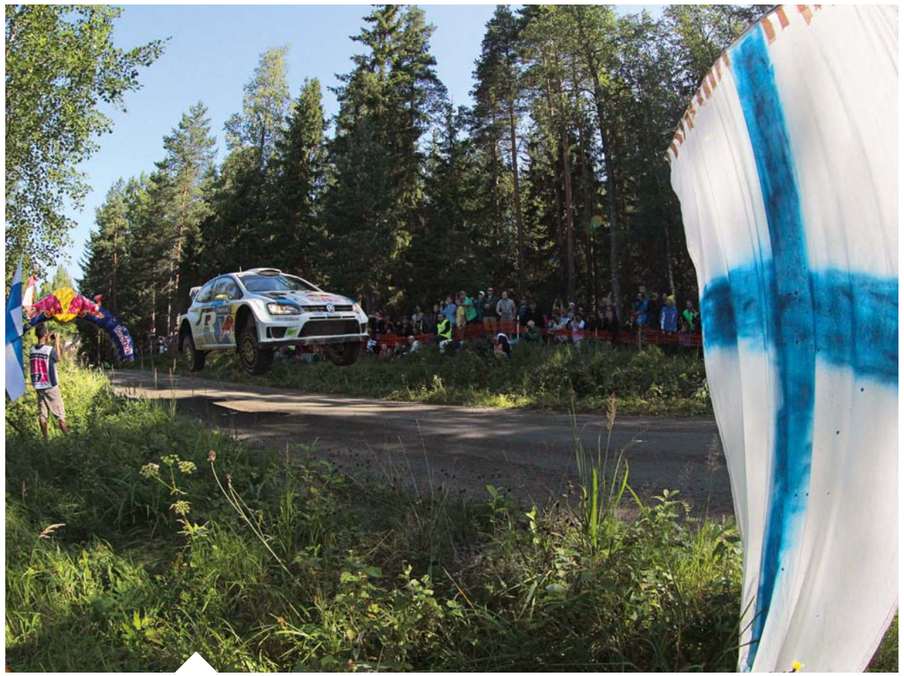
The announcement of Prost's involvement in the new FIA series was followed swiftly by the news that he will be joined by another former F1 team owner, Aguri Suzuki, who will enter a team to be called Super Aguri Formula E, or SAFE.

Suzuki, the first Japanese racer to score a podium finish in Formula One, in 1990, ran his own Super Aguri F1 team from 2006-2008. When the outfit ran into difficulties Suzuki pulled out of the top flight and focused on a Super GT programme in Japan under the Team Aguri banner.

"Today is a new chapter for the Super Aguri name and I'm proud that our team will represent Japan in the inaugural Formula E series," said Suzuki. "Zero emissions racing is a progressive concept for the motorsport industry, and after more than 40 years as both a driver and team owner, I see Formula E as a great stride towards the future.

"Japan has always been at the forefront of cutting-edge innovation and our participation in the series will enable us to promote and develop electric vehicle technology not just in our region, but also on a global scale."

ELECTRIC PERSONALITY: Four-time F1 champion Alain Prost is to partner with French race squad DAMS to create a team for the FIA's Formula E Championship, which begins its inaugural season in September 2014. Prost will be joined in the series by fellow former F1 team owner Aguri Suzuki who is to field a team called SAFE.



PHOTOGRAPHY: DPPI

FINNISH ROUND OF WRC WORTH €15M TO REGION

The World Rally Championship injects almost €15 million into the economy of the Jyväskylä area of Finland, according to a new study of the impact of the event.

The study, conducted by Sports Business School Finland's JAMK University of Applied Sciences unit, reveals that the direct economic impact of Rally Finland amounts to €14.7m. Spending during the event was €17 million. The impact was calculated based on the amount of money spent during the event by the audience, VIP visitors, teams and media. Spending during the event is in line with the results of 2008 study, which revealed that the gross economic impact on the area was similar, amounting to approximately €17m.

Event organiser AKK Sports sub-contracted a number of local companies and entrepreneurs to the tune of €980,000 a figure that includes the construction of the event area and road repairs, products and services purchased from local companies, as well as compensations for local sports clubs responsible for Special Stage organisations.

For the 100 local associations and clubs involved in that process, the compensation received makes up a large part of their annual budget, with 93 per cent of the respondents estimating the compensation as significant, very significant or extremely significant for the operations of their association or club. Rally Finland employs annually around 4,500–5,000 volunteer workers.

The event's impact on sales for local companies was described as 'significant'. Of the respondents who reported the event having an impact on the sales (72 per cent), 91 per cent of those estimated that sales improved. Unsurprisingly, the study found that the rally audience spent most on food and beverages, entrance tickets, accommodation and fuel respectively.

STAGE SUCCESS: Local hero Jari-Matti Latvala gets airborne in his VW Polo during this year's Rally Finland, which is estimated to be worth €15m to the Jyväskylä region of the country.

FIA INTRODUCES PUBLICLY VOTED AWARDS TO GALA PRIZE-GIVING

The FIA has opened its prestigious Gala Prize-Giving ceremony to public voting for the first time, with the revelation that two new 2013 awards, for Personality of the Year and Motor Sport Moment of the year, will be chosen by members of the media and by fans.

The new FIA Personality of the Year award will see permanently accredited members of the media attending the FIA's World Championships honour the competitor or figure they believe has delivered something truly special to the world of motor sport during the past 12 months.

Meanwhile, the FIA Moment of the Year award will be voted for by the FIA's Facebook fans. Both prizes will be presented at this year's awards, in Paris, on 6 December.

In the Personality of the Year competition members of the media will be asked to put forward the names of three personalities they feel are deserving of the title.

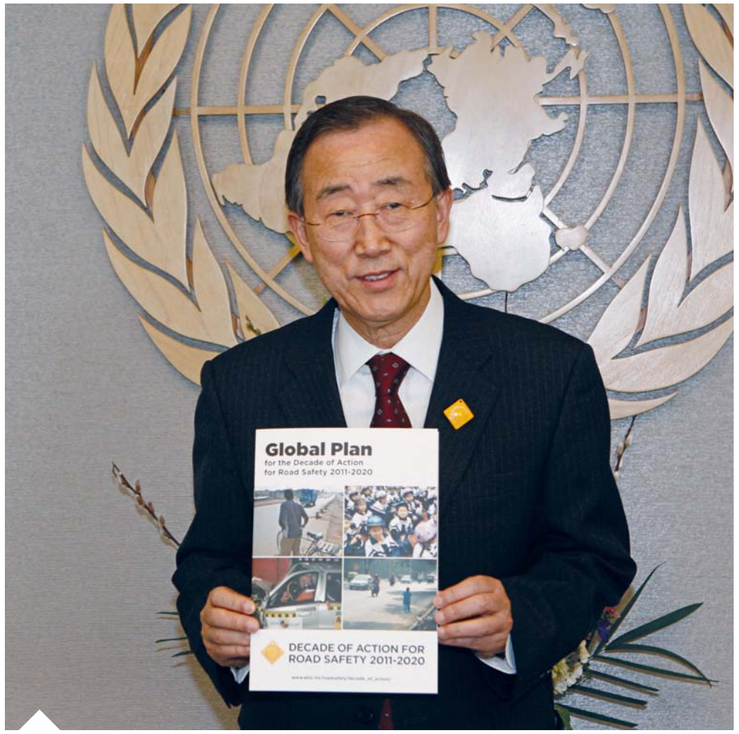
In a second stage of voting, they will then be asked to nominate their personal preference for the winner from a list of the top 10 names to emerge from the first round. The Moment of the Year will be chosen by fans from 12 videos selected by an FIA jury, which includes FIA Academy president Rosario Alessi, FIA Drivers' Commission president Emerson Fittipaldi, and the President of the Founding Members' Club Claude Miffon.

"These awards are an exciting addition to the annual FIA Prize-Giving ceremony," said Alessi. "I am sure they will generate great interest and anticipation this year and in years to come."

Fittipaldi added: "It's been a fantastic year of motor sport. I hope all fans and media will get involved and cast their vote. "

Finally Claude Miffon said: "I have enjoyed being a member of the jury. It is now up to the media and fans to make their choice."

Motor sport Fans wishing to vote for the FIA Moment of the Year prize can view the shortlist of 12 videos at: www.facebook.com/fia



BAN KI-MOON HIGHLIGHTS DECADE OF ACTION FUNDING GAP

United Nations Secretary General Ban Ki-moon has drawn attention to the lack of funding for the Decade of Action for Road Safety, issuing a stark warning that more support is needed if the goal of saving five million lives on the world's roads is to be achieved by the target date of 2020.

In a report issued to the UN General Assembly on the global road safety crisis, he states, "More funding is needed to support road safety activities by United Nations organisations, member states and civil society."

The report also urges the UN to recognise that in the context of planning the new Post-2015 Development Goals, the lack of road safety is an "important obstacle to sustainable development".

The message came ahead of a meeting of the United Nations Road Safety Collaboration (UNRSC) on 5-6 November, where discussions covered targets and indicators for road safety, incorporation of safe and sustainable transport into the post-2015 development agenda, and the mid-term review conference for the Decade of Action.

The UN Secretary General also called upon its member states to address issues such as improved co-operation between departments of transport, developing comprehensive national legislation, new car assessment programmes, and developing global and national targets and indicators.

Overall, the report in which Ban Ki-moon speaks insists that a "more systematic approach needs to be taken to address road safety issues across the five pillars outlined in the Global Plan for the Decade".

FUNDING FIGHT: UN General Secretary Ban Ki-moon, who says "more funding is needed to support road safety activities by United Nations organisations, member states and civil society".

ADVANCING THE ROAD SAFETY AGENDA IN TANZANIA

The Road Safety Fund organised a Policy and Donor Forum in Dar Es Salaam, Tanzania, this September, to discuss ways to advance the country's road safety agenda.

The forum, organised with NGO partner Amend, brought together USAID, the European Union Delegation to Tanzania, the World Bank, the Japan International Cooperation Agency and a number of Tanzanian government ministries. Delegates heard about initiatives already having a positive impact, such as the Global Helmet Vaccine Initiative, iRAP and the Safe Schools projects, run by Amend.

In her keynote speech, British High Commissioner to Tanzania Dianna Melrose, said: "Accidents place a huge strain on overstretched health services. The loss of a breadwinner can deny children the right to education, accentuate poverty and act as a brake on economic development."

FIA INSTITUTE RECEIVES ISO CERTIFICATION

The FIA Institute has received the ISO 14001 certificate for environmental management after demonstrating its performance in this area and maintaining high standards of sustainability across its operations.

ISO 14001 is a management standard that encourages companies to evaluate and reduce their environmental impact. The FIA Institute was required to analyse its current environmental strategy, then formulate new routines and a clear plan to minimise its environmental footprint. The certificate is based on a continuous cycle of checks and corrective action, thus ensuring a lasting commitment to continual improvement.

The certification is a further boost to the Institute's Sustainability Programme, which was launched in August 2012. At the heart of the initiative is the Environmental Accreditation Scheme, which helps motor racing stakeholders improve environmental performance. The McLaren F1 team was accredited last year and became the first to receive the top level accreditation. Recently, Rally Australia became the first motor sport event to do so.

UN CALL FOR SAFE AND SUSTAINABLE TRANSPORT POST-2015

Safe and sustainable transport must be part of the post-2015 development agenda. This was the overriding message at a UN High-Level Session organised by UN-DESA, UN-HABITAT and the Ford Foundation on 26 September.

The session was led by the Prime Minister of Jamaica Portia Simpson-Miller, who said: "Given the magnitude of the global situation concerning road safety, and the enormous impact on low- and middle-income countries, it is imperative that the issue is a UN priority and is included in our discussions as we seek to determine the post-2015 development agenda."

At the session, leader of the United Nations' Long Short Walk campaign, Zoleka Mandela, granddaughter of Nelson Mandela, reinforced the Jamaican prime minister's message.

She was joined by sprinter Shelly-Ann Fraser-Pryce, the double Olympic 100m Champion who is supporting the campaign, which is backed by the FIA Foundation and the Make Roads Safe campaign.

"I want to see better protection for young people worldwide," said Fraser-Pryce. "Road traffic injury is the biggest killer of 15-29 year olds globally. I urge governments and the international community to come together and put plans in place to save lives and to protect the vulnerable on our roads."

ACADEMY'S ELITE GROUP

Following a series of selection and training events around the world, the FIA Institute has chosen 10 drivers for its 2013/14 Young Driver Excellence Academy.

The group is made up of the five winners of the regional events and five wildcard entrants chosen by the FIA Institute and Academy instructors, including former F1 driver and two-time Le Mans winner Alex Wurz and former World Rally Champion co-driver Robert Reid.

Wurz was particularly impressed with the final crop this year. "The selection process was on a global scale and this helped us to reach more talent across the world," he said. "The 10 drivers we selected are truly gifted and talented, so I see them again following in the footsteps of previous academy participants, to the pinnacle of motor sport."

The Institute had planned to choose just three wildcard places but the impressive array of talent led to an increase to five. In particular, the Institute wanted to ensure a rally driver was amongst the final group and Henk Lategan from South Africa had been on Motorsport South Africa's shortlist. He was also considered to be one of most exciting talents coming up through the rallying ranks. The other four wildcards came from the five selection events and were chosen after demonstrating their understanding of safety-related matters, skill and potential.

Beginning in mid-December, the Academy provides a fully-funded training programme which aims to help drivers develop their motor sport careers. The first workshop will take place at Edinburgh University and will focus on the drivers' fitness and performance.

2013/14 YOUNG DRIVER EXCELLENCE ACADEMY

ABDULLAH BAMOGADDAM,
19, Saudi Arabia
Current Championship:
Saudi Formula 2000

JORGE CEVALLOS,
19, Mexico
Current Championship:
Protyre Formula Renault UK

DIEGO FERREIRA,
19, Venezuela
Current Championship:
Pro Mazda Championship

MICHELLE GATTING,
19, Denmark
Current Championship:
VW Scirocco R-Cup

IGNAS GELZINIS,
22, Lithuania
Current Championship:
Renault Clio Cup GB

MAURICIO HERNANDEZ,
18, Costa Rica
Current championship:
Costa Rican Karting Championship

ERIK JOHANSSON,
17, Sweden
Current Championship:
Formula Renault 1.6 Nordic Championship

HENK LATEGAN,
19, South Africa
Current Championship:
South African National Rally Championship

AKHIL RABINDRA,
17, India
Current championship:
JK Racing India Series (Formula BMW)

KELVIN VAN DER LINDE,
17, South Africa
Current Championship:
VW Scirocco R Cup

Turn to page 76-77 to see all the drivers who took part in the selection process

PHOTOGRAPHY: DPPI, LORENZO BELLANCA

TRIBUTES PAID TO MARÍA DE VILLOTA

Trbutes for FIA Women in Motorsport ambassador and FIA Drivers' Commission member María de Villota have flooded in from across motor sport following the former Formula One driver's sudden death in October.

Severely hurt in an F1 testing accident in July 2012 , de Villota (33) died in Seville in early October as a result of the injuries suffered in the crash at Duxford Aerodrome in the UK.

Following her accident, de Villota devoted herself to promoting women's involvement in motor sport and road and track safety issues, work acknowledged by FIA President Jean Todt, who led the tributes to the racer.

"María was a fantastic driver, a leading light for women in motor sport and a tireless campaigner for road safety," he said. "Above all she was a friend I deeply admired. Through her courage, strength and determination she transformed her personal misfortune into a powerful message for road safety that was heard at race tracks and beyond around the world."

The FIA president's thoughts were echoed by Michèle Mouton, President of the FIA's Women in Motorsport Commission, to which de Villota had been appointed an ambassador in June 2012. "Maria was a great person," she said. "When you are able to go through such a terrible tragedy and transform the negatives into such positives, it is truly remarkable.

"We worked together in the Women in Motorsport Commission and María was an inspiration not only to our members, but also the wider motor sport community. As one of our ambassadors she strived to get more women into our sport. She was a dedicated supporter for road and motor sport safety and was very involved with our Action for Road Safety campaign."

The news of de Villota's death sent schockwaves through the F1 paddock at Suzuka Circuit, where teams were preparing for the Japanese Grand Prix, with teams and drivers across the sport sending messages of condolence.

De Villota raced in a numerous series before F1, including the World Touring Championship and Superleague Formula. Her first taste of F1 came in 2011 at the Paul Ricard circuit in France, when she tested a Renault R29 car. She was later signed as a test driver by the Marussia F1 team, for whom she was driving when her accident occurred.

TRAGIC LOSS: Maria de Villota, seen here at the Spanish Grand Prix in May of this year, campaigning with the FIA in support of Make Road Safe's Long Short Walk initiative.

ACADEMY GRADUATES GAIN GROUND

Graduates from the FIA Institute Young Driver Excellence Academy enjoyed an impressive year with a number of drivers making the step up to Formula One, the World Rally Championship, Indy Lights and GP2.

Alexander Rossi and Robin Frijns claimed a race victory apiece in the course of the GP2 season, as both continued their work as reserve F1 drivers for Caterham F1 and Sauber respectively. While Frijns lost his Sauber role halfway through the season, Rossi took part in two F1 practice sessions for Caterham, at the Canadian and US GPs.

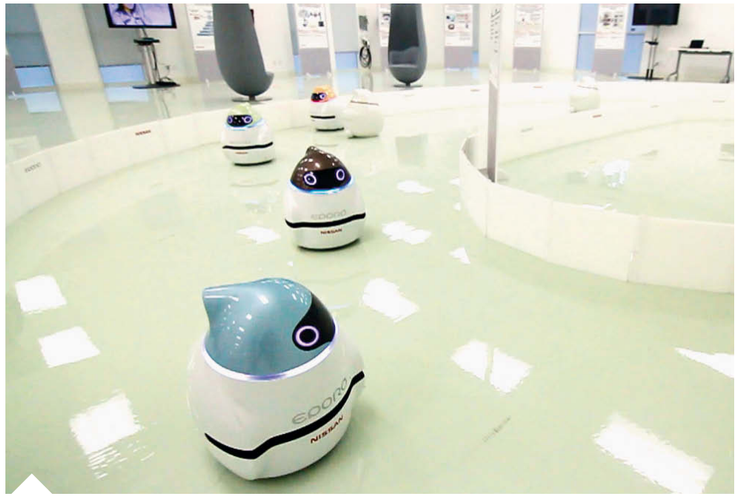
Belgian Stoffel Vandoorne was selected to join McLaren's Young Driver Programme and soon followed up his Formula Renault 2.0 Championship-winning season by finishing runner up in Formula Renault 3.5 this year. He then took part in the end-of-season GP2 test in Abu Dhabi. Elsewhere, Briton Alex Lynn claimed three race victories on his way to third in the Euro Formula 3 Championship and capped the season with an impressive win at Macau.

In the US, Gabby Chaves finished an impressive second in his first season in Indy Lights and was only eleven points off the title winner. .

In Rallying, Pontus Tidemand claimed the prestigious Junior World Rally Championship crown, helped by victories in Portugal, Germany and France. Already competing at the World Rally Championship level, Andreas Mikkelsen produced a strong season for the Volkswagen Motorsport team earning points finishes on a number of events.

Meanwhile, Timmy Hansen capped a successful year in the European Rallycross Championship by claiming the Rookie of the Year Award.

Stoffel Vandoorne celebrates victory at Monza earlier this year.



NISSAN TURNS TO ANIMAL KINGDOM FOR SAFETY INSPIRATION

Nissan road safety researchers have turned to the animal kingdom for inspiration in discovering new methods of reducing fatalities and serious injuries on the world's roads.

According to Toru Futami, engineering director of advanced technology and research at the motor manufacturer, group movement in animals provides excellent models for safe traffic flow.

"In our ongoing quest to develop collision-avoidance systems for the next generation of automobiles, we needed to look no further than Mother Nature to find the ultimate form of collision-avoidance systems in action, in particular, the behavioral patterns of fish," he said.

To best replicate the movement of fish, the researchers created the EPORO (EPisode 0 RObot), which utilises Laser Range Finder (LRF) technology, inspired by the compound eyes of bumblebees which can see more than 300-degrees. Six EPOROs communicated among themselves to monitor each other's positions to avoid collisions, thus exhibiting the behavior of fish swimming in schools.

"In current traffic laws, cars are supposed to drive within the lanes and come to a halt at stop signals, but if all cars were autonomous, the need for lanes and even signals could be gone," said Futami.

"Fish follow three rules: don't go away too far, don't get too close and don't hit each other. Fish also use these three rules when forming schools. A school of fish doesn't have lines to help guide individual fish, but they manage to swim extremely close to each other. So if cars can perform the same type of thing within a group and move accordingly, we should be able to have more cars operate with the same width roads. This would lead to more cars, but with less traffic congestion."

ANIMAL MAGIC: The prototype for a more fluid approach to road safety, Nissan's EPORO robots have 300-degree vision, similar to bumblebees. They continually monitor each others' positions, as do fish, so they know exactly when to steer clear of each other.

FIA PREPARES FOR ELECTION

Presidents from the 236 FIA clubs, representing over 135 countries across five continents, will gather in Paris on 6 December to take part in the FIA Annual General Assembly. This will be a special event for the FIA as it includes the elections for all FIA officers, a process that takes place every four years.

The elections do not just involve the selection of the FIA President but also the President of the Senate, the Deputy President for Automobile Mobility and Tourism, the Deputy President for Sport and the selection of seven Vice Presidents for Sport (representing Middle East, Africa, North America, South America, Asia Pacific and two from Europe).

The General Assembly's agenda is in principle composed of items that have been brought forward by the FIA's two World Councils, as well as items brought forward by the Senate.

At this year's election there is a single candidate for the Presidency of the FIA, the incumbent Jean Todt.

FIA INSTITUTE TO LAUNCH MEDICAL INITIATIVES

The FIA Institute is set to launch a number of new initiatives and projects to improve and support medical training and practice in motor sport.

The Institute will soon launch its Medical Accreditation Programme, enabling National Sporting Authorities (ASNs) to benchmark themselves against the highest standards of medical training. There will be three levels of accreditation, with the highest having the opportunity to become Regional Training Providers and deliver FIA Institute-approved training and qualifications.

It is also developing a training and certification programme to improve and standardise extrication procedures. In addition, the Institute will be releasing a new edition of its comprehensive guide on Medicine in Motor Sport. To be published as an e-book, it will include contributions from motor sport medicine's top experts.

FIA Institute President Gérard Saillant said: "The FIA Institute's Medical Programme is a key area of development. In the next 12 months, we will see the delivery of a number of important projects."

AUTO ASKS

HOW CAN MOTOR SPORT BETTER ENGAGE WITH THE YOUNGER GENERATION?

Youth is the lifeblood of any sport. As new technologies transform the way young people interact with the world around them, AUTO asks key industry figures how motor sport can better engage with this vitally important demographic

The Promoter

MARTIN ANAYI

Managing Director, IMG Motorsport, European Rallycross promoter

Youngsters these days don't want two-, three- or six-hour races, they want instant gratification. Rallycross races are about four minutes long. If you have a dull race, there is another one in four minutes. So what we have done is simply shape it to be more understandable to the computer game generation.

There is a Codemasters game called *Dirt*, which is one of the most played computer games of all time. Over one-and-a-half-million people bought that game last year and they are inadvertently playing rallycross on their computers.

At IMG, we wanted to do motor sport differently and we felt that rallycross was a good opportunity. It is a sport with a 40-year history, with highs and lows but with some amazing events. The problem was that there was no real direction in the form of a championship promoter. We saw a golden opportunity to repackage the sport and, working with energy drinks company Monster, really zap it into a younger audience.

The cars are the same models youngsters can buy – VW Polos, Ford Fiestas, Citroen DS3s – but these versions have 600-plus brake horsepower and look like spaceships. They fly over jumps and they slide around corners. We didn't have to change much.

The idea ticked so many boxes for us. Monster loves it because they can be at the top level but there is a resonance with grassroots motor sport as well.

The great thing is that we didn't need to do anything to the sport. All we had to do is create a platform to tell people about it. We are only polishing a great product and we are doing that by creating festivals and shows in order to bring in the younger audience.

It is not rocket science because we are only telling them what they want to hear. We are creating live TV coverage, highlights and digital content. We provide this to the stakeholders so that they can tell everyone about it in a way that's seamless and natural. Monster does not want to preach to the audience. It simply wants to communicate through the athletes.

The Driver

ESTEBAN GUTIERREZ

Sauber F1 team member and youngest current F1 racer

It is a complex question. Motor sport is not a sport that you practice at a very early age, like soccer for example. You can do karting but you cannot race in cars until you are older and that means that the interaction between the sport and the fans is not the same. It is our responsibility as drivers to give an example to young people so that they can identify with the sport, not just the racing itself but also the values we have.

It is hard to get to the top level in motor sport if you do not have connections. It takes time and you have to go step by step to get known and to be accepted.

I think that one of the things that is helping a lot is the success of Sebastian Vettel. He is the youngest driver ever to enjoy such success. I think it helps if the fans can identify with someone their own age and follow him as he makes history. In the old days the drivers were older and so probably the average age of fans was older as well. I think that there is now a new generation of fans coming to the sport because of Sebastian.

The advent of the Internet has been like a bomb going off in the media and I am not sure if coverage of F1 is really going in a healthy direction as a result. But in time I think the Internet will become a much more useful tool.

I am sure there are good reasons why F1 has not done more with the Internet. You've been able to watch IndyCar on the Internet for years, and you can choose the drivers you want to watch and the different in-car cameras. That allows great interaction for those fans who are not able to go to the races, either because it is too expensive or because the tracks are too far away.

I predict that in future there will be much more use of the Internet. It will offer great opportunities to connect even better with young people and develop a new generation of motor sport fans.

PHOTOGRAPHY: JEAN MICHEL LE MEUR / DPPI

The Marketeer

STEVE MADINCEA

Founder and Group Managing Director at marketing agency PRISM

The first thing we have to do is to reach into the younger generation's world and bring them into our motor sport world. We must create avenues for them to take their first steps in motor sport. Driving schools are expensive, as are F1 tickets, and rallies are often difficult to get to. Almost every point of entry into motor sport presents some kind of challenge.

As part of the solution, why not have race simulators in schools as part of an international curriculum? Not merely to teach youngsters about driving, but also to have them fall in love with the concept. What about creating touch points for no- or low-cost participation? In football you often see youngsters escorting footballers onto the pitch before a match. Why can't motor sport have deserving youngsters escort drivers onto the grid and stay with them during their parade lap? Why not open all garages and service areas to local schools for group tours on the Thursday before a grand prix or other motor sport event? These things are cost neutral, but start engaging future generations.

In a more practical sense – but perhaps more controversially – why not force the top teams in all the World Championships to have second- or even third-tier teams in the lower formulae? It would be their responsibility not merely to groom young drivers, but also young mechanics and engineers, marketing and PR people.

I think the ultimate obstacle is everyone seems to think this is somebody else's problem. In my opinion, if you care about the future of motor sport, it is our problem, right now.

F1 Safety

SIM SAFETY

New F1 extrication simulators will be used for training and practice at Grand Prix circuits around the world

TEXT: MARC CUTLER PHOTOGRAPHY: THOMAS BUTLER

Formula One cars are expensive and rare, making it rather difficult for a grand prix circuit to train its marshals. This is why the FIA Institute has developed a range of F1 extrication simulators.

Built from fibre-glass, these simulators are replicas of F1 cars from the nosecone to just behind the driver. They feature everything you would expect in modern Formula One tubs, from cameras and steering wheels, to a removable extrication seat. More importantly, they offer the chance for track teams to practice before and during the event weekend.

"We recognised the difficulties encountered by rescue workers and extrication teams in gaining access to a modern F1 car to practice on," says FIA Institute medical consultant Dr Paul Trafford. "So we developed an F1 simulator incorporating all the elements necessary to train and become proficient."

The simulator includes accurate safety structures such as side pods, harnesses, buckles, release mechanisms, a Lear seat, head protection and even a removable steering wheel. "It allows extrication teams worldwide to practice and improve their already impressive performances when an accident occurs," adds Trafford.

Extrication teams were introduced to F1 in 1990 by legendary F1 doctor, Prof Sid Watkins. Called KED teams (after the Kendrick Extrication Device they initially used to remove drivers safely from the chassis) these six-man units, led by a physician, are on hand at every grand prix in the case of an emergency.

Their job has been helped in recent years by the introduction of extricable seats. This has meant that in many cases the driver can be removed from the car while still in his seat, with the seat acting as a spinal splint. But that does not detract from the importance of the KED teams and their work.

In the event of an accident, a Medical Intervention Vehicle will arrive first at the scene and perform an initial assessment. Upon arrival of the extrication unit, the trackside doctor briefs the extrication team leader on the situation, and together they determine an extrication strategy. The extrication team then steps in and carries out the agreed extrication procedure, updating the doctor on any changes to the victim's status.

The members of the six-man team must be well versed in all types of extrication and need to master the use of the equipment at their disposal. This is why practice is so important.

There is an official extrication exercise on the Thursday before every race weekend when teams have access to Formula One cars. But with the extrication simulator, teams can now practice all year round and with a chassis identical to the one used by F1 teams.

The first of these simulators was sent to Abu Dhabi for use in the run-up to the recent Grand Prix. Dr Sean Petherbridge, the event's Chief Medical Officer, was delighted to be the first beneficiary of the project.

"Extrication training this year has been made so much better and more realistic with the new extrication simulator," he says. "The extended sides and more realistic quality feel of the device help prepare teams better for the real thing on race weekend."

The Automobile and Touring Club of the United Arab Emirates, for which Petherbridge is also Chief Medical Officer, became an FIA Institute Regional Training Provider in 2011 after demonstrating the highest standards of motor sport marshalling and training. The organisation is therefore eligible to train other National Sporting Authorities around the world and will now use the simulator to help with that.

"As a Regional Training Provider, ownership of the new extrication training simulator will help us continue our work training other countries to the highest level," says Pretherbridge.

The FIA Institute is now planning to send these simulators to other circuits around the world as they prepare to host grands prix.

F1 Safety

MISSILE COMMAND

Ferrari and the FIA Institute have joined forces with one of the world's leading jet fighter test centres to deal with the problem of missile-like debris in Formula One.

TEXT: MARC CUTLER PHOTOGRAPHY: MARCO PERUZZO

When a piece of debris falls off a Formula One car in the heat of a race it can become as fast and dangerous as a speeding bullet.

The life-threatening injuries suffered by Ferrari driver Felipe Massa in 2009, when a 1kg spring from the car ahead came loose and struck his helmet at over 259km/h, are testament to that.

More recently, Marussia driver Max Chilton was hit by a stone tossed up by another car but was saved by the protective visor strip, made from bullet-proof Zylon, that has been added to all F1 helmets since Massa's accident four years ago.

Now the FIA Institute has joined forces with the Ferrari F1 team to undertake a full-scale reconstruction of this type of accident and enhance safety further in this area.

This is why Ferrari's Head of Structures Davide Terletti and FIA Institute Research Consultant Andy Mellor recently found themselves calibrating a cannon at one of Europe's leading test centres for military jets.

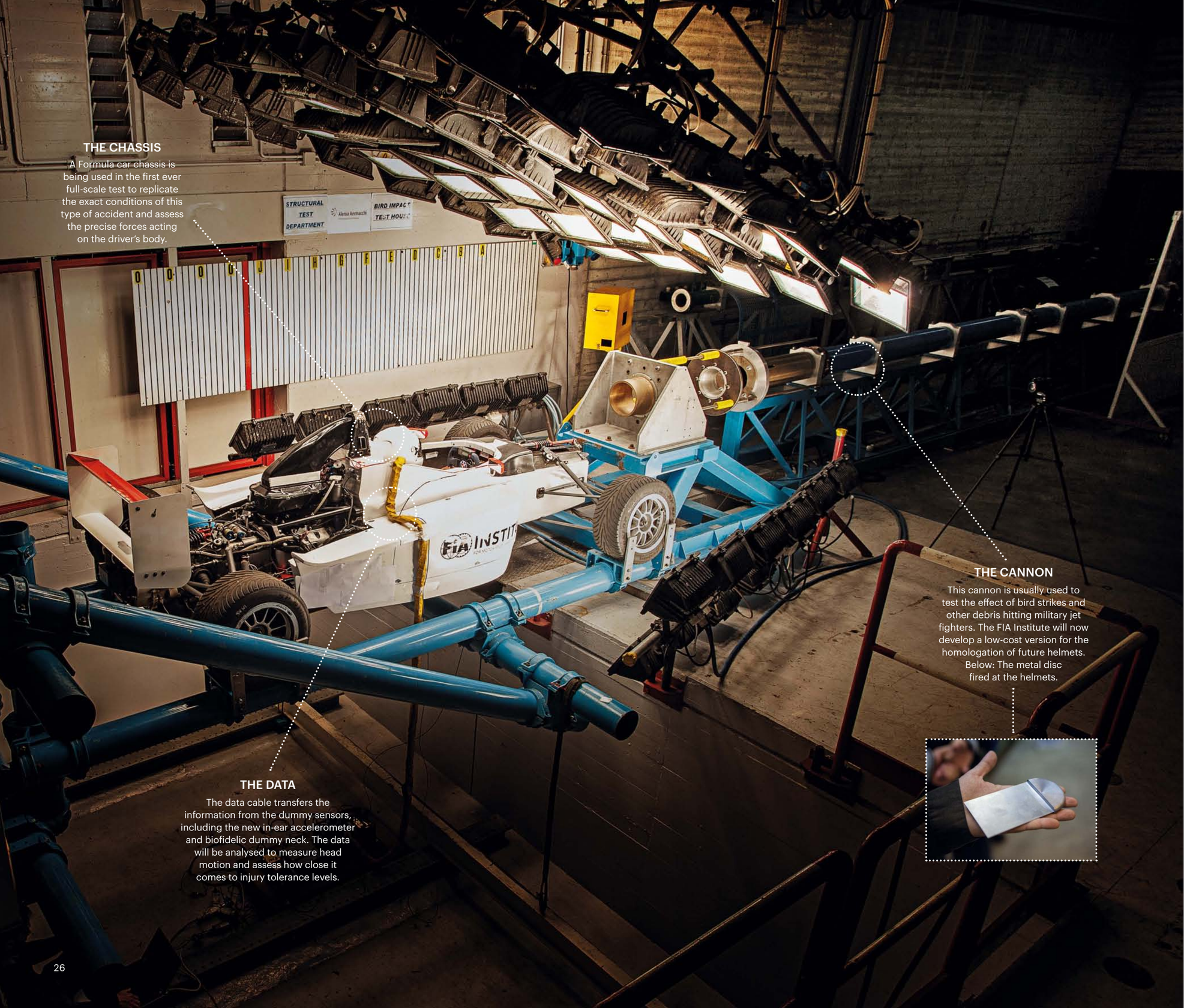
The Alenia Aermacchi facility in Milan plays a key role in world-class jet programmes like the Eurofighter Typhoon and the F-35 Joint Strike Fighter. Now it has a key role in developing safety in F1.

"The Alenia Aermacchi facility has a birdstrike cannon that is very efficient and precise," says Terletti. "It helps, of course, that the technicians at the facility have a disciplined and methodological approach typical of an aerospace company."

Ferrari is funding this project as it is keen to know exactly what happened to one of its drivers and to find ways to protect them in future. "It was a big crash with a potential fatal risk," says Terletti about Massa's accident. "This test could be useful to fight against future possible foreign object head impacts."

Today, at Alenia Aermacchi, engineers are attempting to reconstruct Massa's accident to understand precisely what his injury mechanism was. Andy Mellor explains: "Obviously we know what his injuries were but we don't know what the head acceleration was or what were the forces on the neck."

But that is not the only reason for the test. The crash-test dummy has been fully-instrumented from the shoulders up, providing an opportunity to validate and test a new F1 in-ear accelerometer against the ultra-sensitive nine-accelerometer array usually used for crash tests. Next season the in-ear accelerometer will be embedded ▶



THE CHASSIS

A Formula car chassis is being used in the first ever full-scale test to replicate the exact conditions of this type of accident and assess the precise forces acting on the driver's body.

THE DATA

The data cable transfers the information from the dummy sensors, including the new in-ear accelerometer and biofidelic dummy neck. The data will be analysed to measure head motion and assess how close it comes to injury tolerance levels.

THE CANNON

This cannon is usually used to test the effect of bird strikes and other debris hitting military jet fighters. The FIA Institute will now develop a low-cost version for the homologation of future helmets. Below: The metal disc fired at the helmets.

in drivers' earpieces to give safety researchers vital information about the forces acting on drivers during an accident.

A third element of the test is to fully assess the benefits of the Zylon visor panel added to F1 helmets after the Massa incident. Today's results will help establish test conditions for the Zylon panel, which will be built into new FIA safety standards for top-level 8860 helmets.

"We want to correlate exactly the Massa incident with speed, impact position and mass of debris," says Terletti. "Then to compare different helmet construction and validate the visor reinforcement already adopted in Formula One."

The three leading F1 helmet manufacturers – Bell, Schuberth and Arai – have each donated two helmets for these tests and are not expecting them back without serious damage.

The cannon is all set. It will fire a 225g metal disc at the first of these helmets at a speed of 250km/h. Although the spring that struck Massa's head was significantly heavier than the metal disc, the cannon will deliver a direct hit so the weights have been adjusted to take account of this.

"We want to correlate exactly the Massa incident with speed, impact position and mass of debris, then validate the visor reinforcement adopted in Formula One."

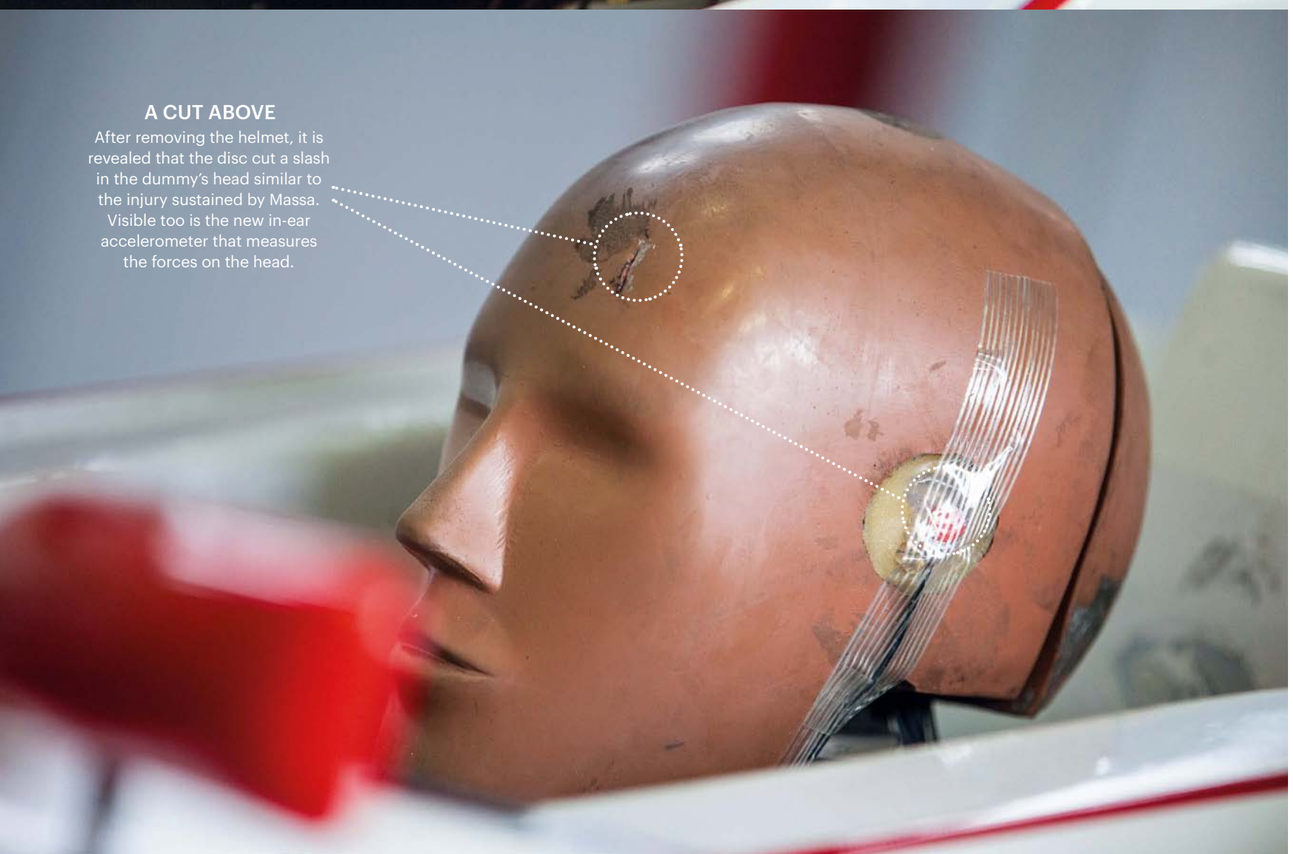
DAVIDE TERLETTI, FERRARI

"We're simulating the spring hitting the helmet," explains Mellor. "But the other consideration is the effective mass of the spring at the time. We did some mathematical simulation to see what the effective mass was, because in Massa's accident the centre of the spring missed the helmet. We came out with an effective mass of 225g – about a quarter of the spring's mass."

The cannon explodes into life and the metal disc flies directly towards the crash-test dummy wearing a Schuberth helmet (the same design Massa was wearing) and sitting in a Formula car chassis. The projectile smashes into the helmet at the target mark, just above the visor, to the left of the eye. The results are devastating as the helmet fails to take the full force of the impact and the disc penetrates the dummy's head.

Mellor's calculations are spot on. "The test has proved incredibly accurate to the point that the disc caused damage very similar to that on Massa's actual helmet." he remarks. "It has just about penetrated through and cut a slash in the dummy's head in a way that is similar to how the spring injured Massa's head having got through the helmet."

For Mellor, the next step will be to discuss the test results with leading motor sport doctors to understand the detail of Massa's injuries in relation to the forces that have been measured. ▶



HARD HAT

The 8860 F1 helmet can endure the force of a 55-tonne tank and the heat of a house fire

This FIA-prescribed 8860 F1 helmet, currently manufactured by Schuberth, Arai, Stilo and Bell, represents the pinnacle of driver head protection. The carbon-fibre shell is a mere 1,200g, but can withstand the crushing force of a 55-tonne tank without deforming, and an 800ºC fire for 30 seconds without its interior rising above 70ºC.

Yet the quest for perfection is unceasing and the FIA Institute is leading the charge. In 2011, 8860 helmets were given a new refinement, a Zylon panel across the top of the visor that significantly enhances protection in that area.

The panel is a 50mm-tall strip, reinforcing the full width of the visor. It overlaps the top 25mm of the visor and extends 25mm above the helmet shell edge – dimensions that ensure extra protection without impairing driver vision.

In tests, Zylon was found to be better than carbon-fibre for this application as it offers improved energy-absorbing qualities. A 4kg spike was dropped from a 10m height onto the panel to test penetrative resistance and it held firm.

Zylon is a synthetic polymer that is already used in applications such as ballistics-resistant body armour, snowmobile drive belts and the rigging on racing yachts. It is also a familiar material to motor sport engineers – since 2007 the cockpits of Formula One cars have been Zylon-clad, and the material can also be used for wheel tethers.

The FIA is now working on a new 8860 standard as it continually pushes to reinforce safety in the sport.

ABOVE: This helmet with the Zylon panel successfully prevented the disc from penetrating through to the dummy's head.

PHOTOGRAPHY: MARCO PERUZZO

But the test is far from over. Next up on the dummy is the Schuberth helmet with the Zylon panel. The cannon and disc perform exactly as before but the results are hugely different. "The panel has effectively halved the loads or energy transferred to the driver's head," says Mellor. "With the panel on the helmet, the disc did not get through to the head."

Mellor and Terletti couldn't have hoped for more. On the basis of the results obtained, the cannon test can now form the basis of a new FIA helmet standard. Previously, the FIA approved visor panels by design specification: recommended material, thickness, width and so on. Going forward, it can set a new helmet standard based on what the panel needs to achieve in a controlled test.

The manufacturers will have the freedom to make the panel out of whatever material they want as long as they meet the new standard. The FIA Institute, meanwhile, will develop a low-cost version of the Aermacchi cannon, which can become part of the homologation procedure.

The other helmets are each tested in the same way, producing similar results. But it is now the turn of the in-ear accelerometer to prove its potential. As well as the instrumentation on the dummy head, researchers use an instrumented bionic neck, which is highly biofidelic, mimicking the movement of the human body.

"The Zylon panel has effectively halved the loads or energy transferred to the drivers head."

ANDY MELLOR, FIA INSTITUTE

The sensors combine to measure head motion and assess how close it comes to injury tolerance levels. The results from the new in-ear accelerometer match those of the other sensors – another success for today's test.

Mellor says: "It looks like the in-ear system is pretty robust and showed the frequency response of the accelerometer in relation to the movement of the driver's head. It's really helping us to understand and characterise the ear accelerometer."

Clearly, this test was a very successful one on a number of levels. Terletti believes it will lead to a number of safety improvements at the top of the sport.

"The incident's known parameters and the helmet damages were simulated well. The visor screens proved very flexible and difficult to be penetrated. The visor reinforcement, with high-strength carbon fibres, also worked very well. But even if the results are already satisfactory, we should aim to improve helmet body strength further. We should reinforce the chassis protection of the driver's head and also keep a database of ear accelerometer data."

To do this, Ferrari will carry on working closely with the FIA Institute on important safety projects. Certainly, Terletti is keen to continue the collaboration.

"The work of the FIA Institute is impressive and has led to many years of deep and positive safety developments," he says. "I feel the times of the Ayrton tragedy are far away." ■

THE 1 DRIVER

LONG DISTANCE RUNNER

Mark Webber's last stint in endurance racing ended with his car flying through the air and a firm vow not to return. Fourteen years later, however, the Australian is walking away from Formula One and heading back to sportscars and the FIA World Endurance Championship. The reasons, he says, are simple: 'It's Porsche and it's a personal challenge'

TEXT: TONY THOMAS PHOTOGRAPHY: THOMAS BUTLER

Upside-down at almost 200mph, 20 or more feet above the Le Mans tarmac, utterly out of control as he waited for his Mercedes CLR to smash to the ground ahead of a huge accident... It's a safe bet Mark Webber wasn't thinking fondly about a circuit that remains one of the great challenges for man and machine.

Webber's CLR had taken off on the Mulsanne Straight during a Thursday practice session for the 1999 24 Hours and then back-flipped – graphically demonstrating an aerodynamic frailty that has blighted large flat-bottomed race cars repeatedly in recent decades.

He survived the wild ride and crash-landing unscathed, as he would again a day later in a near-identical incident. So, too, did team-mate Peter Dumbreck on lap 75 of the race. Dumbreck's escape was even luckier: his CLR also flipped and flew, and with remarkable good fortune passed between trees alongside the circuit, before landing belly-down and leaving Dumbreck only bruised and shaken.

But with their racing cars manifestly unsafe on Le Mans' long, long, high-speed straights, owing to a hitherto

'There were a lot of cars flying in the '90s. As drivers we're well used to getting back on the horse and dealing with those personal battles, but under the circumstances there was no way for us to re-group and re-do the race properly. So, yeah, for me to go back there after some of the incidents is a personal challenge as well.'
- Mark Webber

hidden aerodynamic flaw, Mercedes withdrew on the spot. Neither they, nor Webber, have since attempted a sustained endurance racing effort, although in Mark's case that's about to change. His high-profile defection from Red Bull Racing to spearhead Porsche's assault on the FIA World Endurance Championship means all eyes will be on him, and his new team, when they roll into town next June.

Typically candid, he admits "the big one" is unfinished business and while his feelings about the event are understandably mixed, there's no mistaking the familiar, steely, competitive edge that creeps into his voice when he talks about the challenge of *les vingt-quatre heures du Mans*. "There were a lot of cars flying in the '90s," he reflects. "As drivers we're well used to getting back on the horse and dealing with those personal battles, but under the circumstances there was no way for us to re-group and re-do the race properly. So, yeah, for me to go back there after some of the incidents is a personal challenge as well."

Webber's sportscar return, by happy coincidence, aligns almost perfectly with Porsche's own as a factory entrant – 1998 having been their last 'works' season. And for both driver and team, the 2014 World Endurance Championship campaign will constitute a new chapter: for Webber perhaps a sweet coda to a successful single-seater career; for Porsche maybe a reboot of an illustrious past.

That, at least, is the aim and Webber, like his new employers, has no intention of making up the numbers. "The big appeal for me," he says of the WEC, "is that the cars are still super-close to F1 in terms of lap time, and that was very important to me. I knew that once I left F1 I needed something that was still super-stimulating. It's obviously the closest category you can get to F1.

"The way that the cars deliver that lap time is slightly different," he continues, "and in terms of technology there will be a bit of new kit to get used to, so it will take a little time to work out where the performance is. But that's just part of the new challenge."

So, too, is the process of familiarisation with a new race team environment. Webber's first 'getting to know you' conversations with Porsche occurred during a Red Bull promotional event at Austria's Red Bull Ring circuit in 2012. A handshake deal was done – "you can do that with a company like Porsche" – and at one stage the Webber-Porsche-WEC combination looked possible for 2013.

In the event, Webber opted for another season with Red Bull Racing, while Porsche settled upon giving themselves more time to prepare for what will inevitably be an intensely scrutinised return to top level endurance competition.

The year-long postponement, however, has served only to sharpen Webber's appetite: "It's very hard to ignore Porsche when they're keen to get you and once that became apparent, the switch was inevitable. I've been keeping a close eye on the series for the past two years," he admits.

The intensity of contemporary endurance racing has "hugely impressed" him and the opportunity of racing hard from lights to flag, without the worries about tyre wear that have so dominated F1 in recent seasons, is a major attraction, Webber explains.

"The races look a lot like long F1 races, really, with a lot of traffic. And there are races amongst races and that's a huge difference I'll have to get used to."

Throughout the category, he reckons, "things have ramped up massively," with higher levels of technology, more team professionalism, better safety and more intense track action. The renewed involvement of such a prestigious brand as Porsche ups the ante still further.

"The manufacturers are only in it to do a great job," he says. "They're all going to have to be very technically prepared to operate in the WEC, as it looks like a game that is getting harder to win. The standard just keeps going up."

Same goes for the drivers, who, Webber observes, are "definitely at a higher level than when I last raced sportscars. The average age is lowering, too, because manufacturers want super-quick drivers. There are guys at the back of the F1 grid who you would question whether they are at the level [of WEC]."

One thing that hasn't changed, however, is the mystical allure of WEC's showpiece event – Le Mans – and racing for 24 hours on a legendary circuit built around a small town barely two hours from Paris. Since the 1920s the best drivers of their day, aboard the most dramatic machinery available, have been drawn to the event to hurtle along its often perilous roads (though less so now than they once were), through day, night, sun or driving rain, facing down whatever challenge the circuit can conjure.

Webber still finds the 13.6 km track's potent thrills irresistible: "I've always enjoyed driving a car there," he reflects. "I love the long lap and it's a different animal at dusk, at dawn and during the night. I love the build-up to the race and the feeling of endurance and the many different facets that are required to get the car from 2pm to 2pm, 24 hours later. That's a very special experience."

Drivers and cars will, he knows, be "battered" by race end, as "there's no such thing as a smooth Le Mans." But he counters: "That's the exciting thing about it. It's exceptionally demanding of everyone. Next year's race could be the best for a number of years..."

The competition – chiefly Audi but also a strengthening Toyota factory squad – could hardly be tougher, not just at Le Mans but at every round of the series and the presence of an all-conquering rival provides the perfect barometer, and motivation, for Porsche.

"Audi are the benchmark," Webber admits. "They're the team to beat and have been for a long time: they're stable, super-organised and with lots of knowledge of how to win. It's great for us to be testing ourselves against that."

Merely "testing ourselves" won't do for either Webber or Porsche, however. Winning, even if not in year one, is the goal. Not only at Le Mans, either, for there is the small matter of becoming a world champion in a prestigious race series, with a globally revered manufacturer.

"That's the aim," Webber admits, with that patented laconic Aussie snap. "Personally speaking I can't wait for the series, for Le Mans. I've never finished the race, so certainly it wouldn't be hard to improve on what I've done there in the past." Somehow, you suspect he will.

THE 2 CAR

RETURN OF A LEGEND

After a 16-year absence, a works Porsche team is coming back for a full season of endurance racing in the WEC. The fabled marque is keen to emulate its storied past, but the more immediate goal is to deliver a car that meets its exacting standards

TEXT: TONY THOMAS

Porsche and sportscar racing. The words used in conjuntion are about as evocative as racing speak gets. They conjure up images of Langheck 917s skittering down the Mulsanne Straight at 240mph, and Vic Elford with his right boot planted hard to the bulkhead. They evoke the Pink Pig's deep-chested flat-12 engines, wastegate whistles and over-run flame-outs.

It's an irresistible combination and one that will return to top-level sportscar racing in 2014, as Porsche, arguably the most fabled endurance racing team, returns to the FIA World Endurance Championship in 2014 with new hardware, new software, ex-F1 guys across the team and new cockpit aces. This is the first time it will be in full-time, factory-driven competition since 1998.

That's a heck of a void – 16 years – and while Porsche have hardly been absent from motor sport, thanks to customer teams campaigning their cars across the globe, weekend in, weekend out, there hasn't been a 'works' effort since the last millennium.

Audi, these days a Porsche sister company through common Volkswagen Group parentage, has amply filled the place once occupied so grandly by the wizards from Weissach, winning Le Mans every year since Porsche departed, with only three exceptions: 1999 (BMW win); 2003 (Bentley); and 2009 (Peugeot).

PORSCHE'S HEAVILY DISGUISED TEST CAR FOR ITS 2014 WORLD ENDURANCE CHAMPIONSHIP CAMPAIGN IN ACTION AT THE COMPANY'S WEISSACH TEST TRACK.

FORMULA FOR TEAM-BUILDING

Mark Webber isn't the only F1 regular to be recruited by Porsche in its bid for 2014 World Endurance Championship success

FRITZ ENZINGER
The head of Porsche's LMP1 project is a well-respected figure. His CV boasts a long spell at BMW Motorsport in Munich stretching back to the 1990s. There, he rose to Head of F1 Test and Race Organisation before becoming Head of Sporting Organisation.

ALEX HITZINGER
Porsche's Head of LMP1 development Hitzinger cut his teeth with Toyota, designing engines in sportscars and F1. He joined Cosworth as head of F1 engine development, before moving to Red Bull Technology. He also served a stint as Scuderia Toro Rosso's Technical Director.

MIKE KRACK
Race engineer Mike Krack had a successful spell at BMW Sauber in Formula One where, as head of race engineering, he helped the team to third in the Constructors' Championship in 2008. He'll be joined by chief mechanic Urs Karatle, also late of Sauber.

NEEL JANI
Swiss racer Jani was a test driver for F1's Toro Rosso in 2006. In 2007-2008 he won the A1 Grand Prix title and raced in the US CART series. He tested for Force India in 2010 in F1 before switching to sportscars, where for the last two seasons he's been with Rebellion Racing.

PHOTOGRAPHY: PORSCHE

So why return? And why now? Chiefly, explains Porsche LMP1 technical director Alex Hitzinger, it's about ensuring that brand lustre remains buffed. Competing on a global stage, in an FIA World Championship with a showcase central event that remains one of the greatest draws in motor sport, against hugely credible rivals, is precisely what Porsche needs to be doing. Yes, it's about selling more road cars and maintaining brand positioning in a hostile, competitive international marketplace. But it's also – praise be – about competition, racing, the thrill of the chase and technology transfer from track to road.

Hitzinger, an ex-Cosworth F1 engine TD who oversaw the design of the outgoing CA-series V8 that competes in its final F1 season this year, bubbles with energy when talking about the WEC programme, and it's safe to assume his enthusiasm is infectious for colleagues already drinking in the thrills of a new adventure.

"We have our own dedicated team now at Weissach, with more than 200 people, and we are all working on the LMP1 project," he says. "For engineers, it is a dream position to be in, because of the flexibility and freedom offered by the WEC technical regulations and the tight focus we have here. It's just racing, no politics, and it feels extremely pure."

Hitzinger's mention of technical freedoms hits on one of the magnet-draws of the FIA's new-age of sportscar racing to a major manufacturer. Simply put, it gives them a chance to show how clever they are. Audi did so brilliantly, by using TDI technology to prove that a gutsy and efficient diesel motor was the perfect powerplant for endurance racing. These days they're using e-Tron quattro technology which uses a motor generator unit (MGU), a pair of drive shafts and a gearbox to harvest braking energy, which is then coverted via a carbon-fibre flywheel into drive for the front wheels.

Peugeot also flaunted their own diesel savvy in 2009, while lately, Toyota have used supercapacitor technology to provide an energy charge to the drivetrain of their TS030 racer, which, according to driver Alex Wurz, "is the single best bit of technical kit I have experienced in motor racing."

Porsche, it is expected, will be similarly cutting-edge in their pursuit of success, and while Hitzinger will not allow a sneak preview of his new baby's tech spec, reliable leaks suggest a four-cylinder, petrol-hybrid powerplant will supply the motive force.

Sources hint that the overall philosophy of Porsche's LMP1 drivetrain will not be dissimilar from 2014 F1 engines: i.e. a 'base' petrol motor that's turbo-charged and coupled to two energy retrieval systems. This would be little surprise, as Porsche's new and über-desirable 918 Spyder has a petrol V8 engine augmented by twin electric motors.

As with Renault's 'Energy F1' power unit, one of the LMP1's two MGUs will likely be driven from the central shaft of the turbo compressor when in recovery mode, and then will return the favour by using its stored energy to provide 'spin up' thrust to the turbocharger from low revs. Less turbo lag equals snappy throttle response, happy driver and faster car.

That's where the comparison should end, however. For while F1 engine development is carefully mapped out, LMP1 regulations are deliberately looser, framed with the aim of identifying sportscars as the 'innovators' category.

"There are many similarities in the technology between an F1 car and an LMP1 car now," notes Hitzinger. "LMP1 is basically F1 with more bodywork and a slightly smaller

budget, but elsewhere things are a lot less restrictive. When we began this programme a few years ago, we were able to have real blue-sky creative thinking about which direction we wanted to go in, but for some time now, of course, we have focused in on our concept, saying 'this is the car' and from there we work on extracting maximum performance from the equipment."

Testing of Porsche's zebra-camouflaged 'hack' began earlier this year and it has appeared at Magny-Cours, the Lausitzring, Aragon and Monza, driven by Timo Bernhard, with further tests scheduled for Paul Ricard, Bahrain and Sebring. Ensuring it had a reliable engine was a key early stage of development, says Hitzinger: "There's nothing worse than going testing with an engine that keeps failing. The test becomes a complete waste of time."

Long-term planning and a well choreographed test programme underline the seriousness of Porsche's 2014 intent and the signing of F1 top gun Mark Webber as their headline driver is an aggressive gambit that sends a clear message to rivals.

It could hardly be any other way for a company with such a storied sportscar past. Porsche has 16 Le Mans wins dating back to their first in 1970 and 14 world championship titles, among a host of other sportscar prizes.

A mighty legacy then, though Hitzinger denies being intimidated by it. "The history and legacy... they're neither a bonus, nor a problem," he says simply. "It's just good to be working on this project for such a successful brand. It gives our work a special meaning to realise you are doing this for Porsche, even though from a purely engineering and technical point of view it doesn't help us in any way. Our past involvement was so long ago that there is nothing we can take directly from that. It's simply at a different level now in terms of technology and operations. Completely different."

What hasn't changed, however, is the challenge. In decades past, Porsche famously jousted with Ferrari and later the likes of Jaguar, Mazda, BMW, Toyota and Peugeot. Now the target is to take on another German titan at a game Porsche once knew better than anyone.

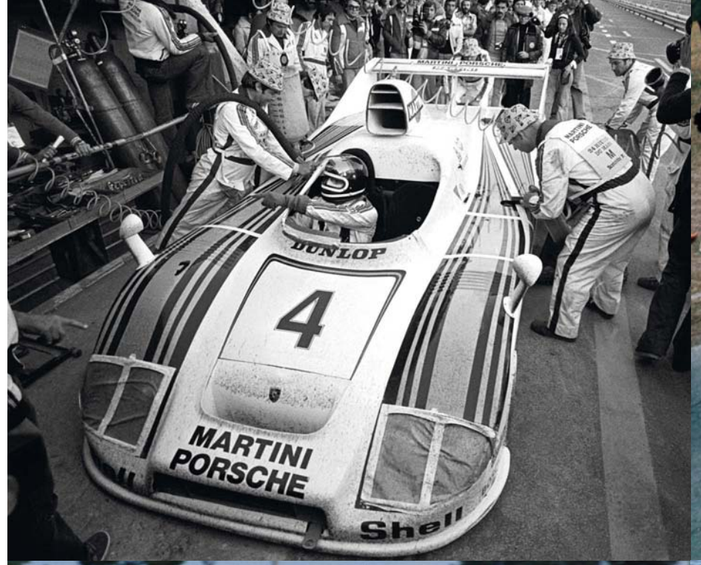
"Audi has been successful in sportcars for more than a decade," says Hitzinger, "and they have won all the major races many times. With an established team and a good development budget, there's no doubt they will be an extremely tough competitor. But that is the challenge."

He acknowledges, too, the threat of Toyota and the resource arsenal such a mighty company can bring to any activity, should it so choose.

There's also the small matter of playing catch-up against teams already accustomed to answering questions thrown up by un-raced technology. "People are expecting victories because we have won Le Mans 16 times," says Porsche LMP1 programme head Fritz Enzinger. "But we shouldn't forget that the last one was in 1998. Everything is new for us. We have new facilities, a new group of people and new technology to understand.

"Our only target for next year is to have a competitive car and to finish races, first the six-hour races and then Le Mans. Only when we go on track with Audi and Toyota will we know if anything more is possible." It's not unusual for establishment figures to downplay expectations and it would be off-message for a company such as Porsche, with nothing to prove, to hint even at optimism, let alone expectation of success.

Yet others will inevitably – justifiably – do that for them. Because a factory Porsche team is back in elite-level sportscar racing. The WEC just got a bit sexier.



SPORTS STARS

Porsche's 2014 return to endurance racing is just the latest chapter in a glorious story in sportscars

In a racing discipline replete with iconic marques – from Aston Martin and Ferrari, to Mazda, Jaguar and latterly Audi and Peugeot – Porsche's history in endurance racing is almost the story of the sport itself.

Following some early success in sportscar racing at Mexico's Carrera Panamericana and Italy's Targa Florio in the 1950s, the company's first real taste of global success came in 1970 when the legendary 917 model gave the outfit its first Le Mans triumph in the hands of drivers Hans Herrmann and Richard Attwood. The success was repeated the following year with a 917 driven by current Red Bull Racing advisor Helmut Marko and Gijs van Lennep.

The pattern was set. Through the 1970s Porsche dominated endurance racing, the great Jacky Ickx taking wins in such seminal machines as the 936 and 956, before handing the baton over to long-time team-mate Derek Bell and drivers such as Stefan Bellof and Hans-Joachim Stuck, who all took the 962C to more wins at the world's great endurance events.

After landing Le Mans wins in 1996 and 1997 with the TWR Porsche WSC-95 courtesy of driver line-ups that included Alexander Wurz and now nine-time Le Mans winner Tom Kristensen, Porsche's last win at the 24-Heures came in 1998 with a Porsche 911 GT1-98 driven by Lauren Aïello, Stéphane Ortelli and one Allan McNish, who alongside Kristensen is still racking up wins in the FIA World Endurance Championship.

L-R FROM TOP: Driver change for the Jacky Ickx piloted P936/77 at Le Mans, 1977; a victory lap at Daytona for Pedro Rodriguez and crew in the 1970 917; back in Le Mans in 1997, and in the lead with Tom Kristensen; the 1996 TWR Porsche WSC 95 in action; the 1979 Le Mans-winning Porsche 935/K3; and in 1998 the last Porsche prototype to win Le Mans, the 911 GT1.

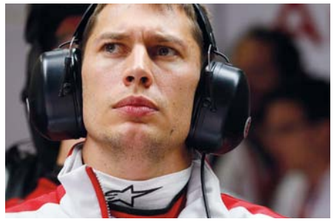
THE CLASS 3 OF 2014

ELITE SQUAD

Mark Webber will undoubtedly light up the WEC in 2014 but while there's always a place for steely-nerved F1 veterans in the series, an influx of bright new talent means every class now features competitive and super-quick drivers

TEXT: IAN WAGSTAFF

The Enduring Heroes



LOIC DUVAL (FR)

For 2013, Audi moved Loic Duval in with the established team of McNish and nine-time Le Mans winner Kristensen, the trio winning the World Championship with one round to spare. He proved himself equal to the duo, sharing victories at Le Mans and elsewhere. He may be said to have taken over from Stéphane Sarrazin as the fastest man in endurance racing. Loic joined Audi last year after two seasons with Oreca's Peugeot during which he shared victory at Sebring.

Le Mans: 2008 (8th), 2010 (DNF), 2011 (5th), 2012 (5th), 2013 (1st)
WEC: 2012 (6th), 2013 (3 wins*)
Sebring 12 Hours winner 2011
2006-2009 A1 GP (2 wins)
2006-2012 Formula Nippon (Champion 2009)
2006-2012 Super GT (Champion 2010)

ALLAN MCNISH (GB)

Allan McNish's charge to victory in the closing stages of this year's Tourist Trophy proved that the Scot has lost none of his fiery pace. Time spent with Toyota in F1 may have meant he has not enjoyed quite as many Le Mans victories as some of his Audi compatriots, but after securing a third victory there in 2013, 16 years after his first with Porsche, we now have confirmation that he is indeed one of endurance racing's all-time greats.

Le Mans: 1997 (DNF), 1998 (1st), 1999 (DNF), 2000 (2nd), 2004 (5th), 2005 (3rd), 2006 (3rd), 2007 (DNF), 2008 (1st), 2009 (3rd), 2010 (3rd), 2011 (DNF), 2012 (2nd), 2013 (1st)
WEC: 2012 (2nd, 1 win), 2013 (3 wins)
Sebring 12 Hours winner 2004, 2006, 2009, 2012
American Le Mans Series champion 2000, 2006, 2007
2002 Formula One

ANDRÉ LOTTERER (DE)

At the time of writing, the reigning World Endurance title-holders Lotterer, Marcel Fässler and Benoit Tréluyer had been outscored by their Audi team-mates in the 2013 championship. However, Lotterer, with a series of quickest laps, and his compatriots, did appear to be in a different league to the other Audis at Spa. He again proved his usefulness with fastest lap at Le Mans, scene of his wins in 2011 and 2012.

Le Mans: 2009 (7th), 2010 (2nd), 2011 (1st), 2012 (1st), 2013 (5th)
WEC: 2012 (1st, 3 wins), 2013 (2 wins*)
2003-2013 Formula Nippon/Super Formula (Champion 2011, 18 wins)
2003-2011 Super GT (Champion 2006 & 2009)
2000-2001 Formula 3 (4 wins)

OLIVIER PLA (FR)

Fastest LMP2 lap in the 22nd hour of this year's Le Mans supports the view that the studious Olivier Pla is the quickest driver in the category. The two-time GP2 race winner joined the Quifel ASM sportscar team in 2008. Driving a Zytek, he won the Le Mans Series LMP2 drivers' title the following year. Results since then have perhaps not matched his talent. For the last two seasons, Olivier has raced an OAK Morgan.

Le Mans: 2008 (LMP4 4th), 2009 (DNF), 2010 (LMP2 7th), 2011 (DNF), 2012 (DNF), 2013 (LMP2 2nd)
WEC: 2012 (20th), 2013
2001-2003 Formula 3 (3 wins)
2004 World Series by Nissan (1 win)
2005-2006 GP2 (2 wins)

New Stars for the Long Run

DARREN TURNER (GB)

One of the most experienced drivers in the large Aston Martin squad, this former McLaren F1 test driver was part of the British manufacturer's three-year tilt at LMP1 honours, but is now back in the GT category. He has often been on the podium at Le Mans, winning the GT1 class in 2007 and 2008. At the time of writing he is battling hard for the new WEC GT drivers' title.

Le Mans: 2003 (DNF), 2004 (GTS 3rd), 2005 (GT1 3rd), 2006 (GT1 2nd), 2007 (GT1 1st), 2008 (GT1 1st), 2009 (11th), 2010 (DNF), 2011 (DNF), 2012 (GTE Pro 3rd), 2013 (GTE Pro 3rd)
WEC: 2012 (35th), 2013
2000-2001 DTM
2006-2008 BTCC (3 wins)
2010-2011 GT1 World Championship (3 wins)

ALEX BRUNDLE (GB)

In making his Le Mans debut last year alongside his father, former 24-hour winner and F1 driver Martin, Alex Brundle made sure he was noticed. However, his performances, then in a Zytek and now in a Morgan, have shown him to be the new star in the LMP2 category. He was runner-up in class in only his second Le Mans, having received the Woolf Barnato Trophy for highest placed British driver in a British car in 2012.

Le Mans: 2012 (8th LMP2), 2013 (2nd LMP2)
WEC: 2012 (73rd), 2013
2009 & 2011 Formula 2
2010 Formula 3
2012 GP3

MARTIN PLOWMAN (GB)

Having tried Formula 3, Martin Plowman crossed the Atlantic to make his name in Indy Lights, finishing third in the 2010 championship. He moved into sportscar racing for 2012, driving an LMP2 Morgan in the American Le Mans Series. Entering the WEC this year to drive an OAK Racing Morgan, the personable young Englishman shared the winning LMP2 car on his debut at Le Mans.

Le Mans: 2013 (LMP2 1st)
WEC: 2013 (2 LMP2 wins*)
2008 Formula 3
2009-2010 Indy Lights (1 win)
2012 ALMS (2 LMP2 class wins)

ALEXANDER WURZ (AUT)

A veteran of 69 grand prix starts with Benetton and Williams, Wurz returned to Le Mans in 2008, 12 years after his only previous appearance, when he had netted a win in his TWR-Porsche. Joining Peugeot, he was victorious on his second attempt in 2009, before going on to share victories at Sebring, Spa and Petit Le Mans. After four years with the French factory outfit he moved to Toyota, scoring three WEC wins in 2012.

Le Mans: 1996 (1st), 2008 (5th), 2009 (1st), 2010 (DNF), 2011 (4th), 2012 (DNF), 2013 (4th)
WEC: 2012 (3rd, 3 wins), 2013 (win*)
Sebring 12 Hours winner 2010
1997-2007 Formula 1
1993-1995 Formula 3

JANN MARDENBOROUGH (GB)

Welshman Jann Mardenborough is further proof of the legitimacy of the Nissan PlayStation GT Academy. Having beaten 90,000 others in the computer gamers' competition, he made his WEC debut this year and showed maturity at Le Mans that belied the fact that, two years previously, he had never sat in a race car. Teamed with fellow gamer Lucas Ordonez and the experienced Michael Krumm, and driving a Zytek, he finished third in class.

Le Mans: 2013 (3rd LMP2)
WEC: 2013
2011 Winner Nissan PlayStation 3 GT Academy
2012 International race debut, Dubai 24 Hours
2013 British Formula Three

MIKE CONWAY (GB)

Towards the end of 2012, former British F3 champion and 2011 Long Beach GP winner Mike Conway announced he was no longer prepared to race on ovals. Given his horrific accident in the closing stages of the 2010 Indianapolis 500, this was understandable. However, it meant a career change. This year Mike has combined a regular drive in LMP2, winning in São Paulo and Texas, with occasional IndyCar road/street course appearances, including victory in Detroit.

Le Mans: 2013 (2nd LMP2)
WEC: 2013
2004 British Formula Renault champion
2006 British F3 champion
2006-2008 GP2 (1 win)
2009-2013 IndyCar (2 wins)

PHOTOGRAPHY: LAT, DPPI

* At the time of writing

Road Safety

BEST FEET FORWARD

The Mandela family have led the Long Short Walk campaign to the UN General Assembly and around the world

TEXT: AVI SILVERMAN

It's early morning in Johannesburg. Hundreds of children are gathered just inside the school gates. They're all stood as still as sentries, their silence broken only by the rustle of banners and placards in the gentle breeze.

Zoleka Mandela, granddaughter of Nelson Mandela and a mother who suffered the loss of her own daughter in a car crash, stands at the front. "Today we begin our campaign," she announces. "We are taking to the streets. We are stepping forward and with our voices loud and clear, we are telling the world that we have had enough. We are facing a global crisis. It denies millions of children an education, plunges families into poverty, and places an intolerable burden on all of us as casualty follows casualty. Let us walk together. We demand action to save lives."

Earlier that morning, the drumbeat of the Xhosa – the Mandela family tribe – led children from schools across Johannesburg on the first Long Short Walk. Many other walks followed across the world. Families took to the streets in Mumbai, huge networks of youth groups campaigned in Washington DC, and activists from Buenos Aires to Bangkok and beyond got involved.

Throughout the year, the Long Short Walk, launched by Zoleka Mandela and her family, together with the FIA Foundation and the Make Roads Safe campaign, has been gaining momentum, growing into a global movement to combat the world's number one killer of young people – road traffic injury. The Long Short Walk proved a hit on social media. People shared photos on Flickr, Facebook and Twitter, adding their voices to a global call for action.

As people took to the streets demanding better safety in their own neighbourhoods, they were aware that they were also becoming part of a much wider community of activists around the world, uniting behind a common aim. The guiding objective behind the Long Short Walk is to push for road safety to be included in the UN's new Sustainable Development Goals, to be launched in 2015. These will replace the Millennium Development Goals (MDGs) when their target date is reached in two years' time. This new

Long Short Walk is pushing for road safety to be included in the UN's new global development goals.

Patrick Makau, Kenya's marathon champion, leads a Long Short Walk event on the outskirts of Nairobi

Zoleka Mandela addresses a UN Millennium Campaign event in New York. She hopes that the United Nations will include road safety in its post-2015 development priorities

"We are taking to the streets. We are stepping forward and we are telling the world that we have had enough."
Zoleka Mandela

set of goals will provide the framework for international development, set global priorities and channel billions of dollars of support for low- and middle-income countries.

When the MDGs were established in 2000, road traffic injury was not considered a public health priority. The absence of international attention on this issue has arguably contributed to the scale of the crisis on the world's roads today. Road traffic injuries represent a global epidemic with a health burden on the scale of HIV/AIDS and malaria. According to the latest research they are the leading cause of death for young people aged 15-29. And the vast majority of the casualties, 90 per cent, are in low- and middle-income countries.

The Long Short Walk is supporting an advocacy agenda calling for a global target to reduce road traffic fatalities by 50 per cent from 2015 to 2030, the period covered by the next development goals. As outlined by the Commission for Global Road Safety, chaired by Lord Robertson of Port Ellen, this target for road injury could be included within a new goal on health or sustainable transport.

Worldwide support for this agenda was demonstrated in the clearest way possible as people took to the streets. And in one incredibly effective piece of guerrilla campaigning across social media, young supporters managed to secure a priceless endorsement from John Podesta, one of the key figures on the UN's High Level Panel for the post-2015 goals.

Podesta, the former Chief of Staff to US President Bill Clinton, was appointed to the panel by UN Secretary General Ban Ki-moon. He spoke at length about the issue of road safety in an online Google Hangout with Long Short Walk campaigners from several countries around the world. Participants sent in questions via Facebook and Twitter. In a discussion with Mariya Ivchenko, a young Ukrainian road safety campaigner, and several other supporters, Podesta urged the international community to ensure that road safety be kept "front and centre" in negotiations at the UN.

During the chat, streamed live on YouTube, he said: "Given that it is such a major contributor to loss of life and disability globally, particularly for young people, I think we have more work to do and we have to keep it on the agenda. We have to look towards the way we can get to the right kinds of targets and indicators that could be included in a global framework."

This proved to be the first of several key breakthroughs for the campaign in the run-up to the opening of the UN General Assembly in September when the future of global development featured high on the agenda for world leaders.

The heads of several major development agencies, including UNICEF, Plan International and the Overseas Development Institute gave their support to the Long Short Walk. In London, as children returned for the new school term, racing legend Sir Stirling Moss added his name to the global call for safer roads at a Long Short Walk organised by the Royal Automobile Club.

In Barcelona, FIA President Jean Todt and the F1 community led 200 local school children to walk one of their favourite stretches of road, the grid at the Circuit de Catalunya. Todt said: "It is paramount that we protect pedestrians and the FIA is delighted that F1 has embraced this initiative to help save lives in such a positive way. It shows how motor sport can help draw attention to such a vital issue."

Tim Keown, Chairman of the FIA Foundation, said: "The Long Short Walk aims to draw attention to the need for pedestrian safety, to generate action on life-saving measures needed to protect pedestrians. This initiative by

the FIA Foundation and the Make Roads Safe campaign has captured the imagination of people across the world. I am delighted that the RAC has stepped up in support."

Mayor of London Boris Johnson also gave his support, saying: "I am keen to encourage walking and safe walking should be a right for all. I wish this event and the UN Decade of Action for Road Safety every success."

Meanwhile, during a period of concerted campaigning in Africa, one local community located beside a dangerous stretch of road on the outskirts of Nairobi organised a Long Short Walk with Patrick Makau, Kenya's marathon star. Shortly afterwards, schoolchildren in South Africa held campaign activities for Mandela Day, the international day of community service to mark Nelson Mandela's birthday.

Recognising the Long Short Walk as an innovative global campaign contributing to the new development agenda, the UN featured both of these activities in Africa at the front of its major report 'A Million Voices: The World We Want'. The report aims to help governments at the UN draft the post-2015 goals.

An even more important breakthrough was when UN Secretary General Ban Ki-moon submitted his personal recommendations on the new development goals to the General Assembly. For the first time, road safety was included in a proposed health goal alongside HIV/AIDS, malaria and non-communicable diseases.

The UN Millennium Campaign – the agency for the MDGs – then invited Zoleka Mandela to open and host its main event on the post-2015 agenda in recognition of her leading role in the Long Short Walk. The event was timed to coincide with the start of the United Nations General Assembly in New York. Just hours earlier, in the UN chambers, presidents and prime ministers of governments around the world participated in the first discussions on the post-2015 development priorities.

At UNICEF Headquarters, Zoleka Mandela took the opportunity to get the campaign's messages across at the highest levels, addressing senior figures from the international development community on the epidemic taking place on the world's roads. She then hosted the 'partner recognition' event organised by the UN's MY World initiative. MY World is the UN's global survey that asks people around the world to vote online for their development priorities. The Long Short Walk had incorporated MY World into its social media campaign.

In a high profile exhibition organised with support from MC Saatchi, the UN selected photos taken by Long Short Walk supporters to be displayed in its New York exhibition highlighting public priorities for post-2015. A Long Short Walk campaign film was also displayed prominently at the exhibition running through the autumn at UNICEF House.

The opening session of the UN General Assembly marked the start of a more intense period of manoeuvring over the new agenda. Several governments have stepped forward to champion road safety. The Russian Federation has continued its leadership of the global road safety agenda, giving key support to the proposals set out by the Commission for Global Road Safety. Others, such as the Jamaican Government, have also stepped up their commitment to this issue at the UN.

Jamaica joined Russia to help lead the way at a high-level session alongside the UN General Assembly, hosted by the Ford Foundation and organised by the FIA Foundation along with UN-DESA and UN-HABITAT.

A Long Short Walk call to action was led by the Prime Minister of Jamaica Portia Simpson-Miller, together with double Olympic champion and fastest woman in the world Shelly-Ann Fraser-Pryce. Joining them were Zoleka Mandela and Deputy Permanent Representative of the Russian Federation to the UN Dmitry Maksimychev.

Ahead of her Olympic triumph in 2012, Fraser-Pryce had headlined a Make Roads Safe event with children from several London schools. Now at the UN, she pledged her support for the Long Short Walk campaign. The double Olympic 100m champion and newly crowned World Champion said: "As an athlete I want to encourage our children to be physically active, to walk or cycle to school. But in too many of our cities this is just not possible, or simply too dangerous. I'm standing proudly with the Mandela family, I'm joining the Long Short Walk, and I call upon our leaders to take action. I urge the international community to come together and put plans in place to save lives and to protect the vulnerable on our roads."

Along with this high profile endorsement, the Government of Jamaica gave its support, which will prove invaluable as the campaign continues in its bid to influence the UN process. Prime Minister Simpson-Miller made a strident call for the United Nations to ensure that combatting road traffic injury is included in the Post-2015 Sustainable Development Goals. Her country is a perfect example of how to actively combat road injuries, having cut the number of fatalities by 25 per cent over four years. It's proof that middle- or low-income countries of any size can make progress on road safety.

Prime Minister Simpson-Miller said: "Given the magnitude of the global situation concerning road safety, and the enormous impact on low- and middle-income countries, it is imperative that the issue is a UN priority and is included in our discussions as we seek to determine the post-2015 development agenda. Road safety is already a priority for Jamaica and we are proof that all countries can save lives on the roads. This is why we are proud to campaign with the family of Nelson Mandela, to uphold the values of social justice and ensure that we have safe roads for all."

Both Russia and Jamaica will serve as key advocates as the inter-governmental talks over the post-2015 development goals progress at the UN. Over the coming months, these negotiations will intensify as the UN seeks to forge a consensus to build on the success of the Millennium Development Goals, address the areas where they may have fallen short and tackle the key emerging challenges that the world faces. There is a long road ahead to ensure that road safety is included as a priority, but the first crucial steps have been successfully taken.

"I urge the international community to come together and put plans in place to save lives and to protect the vulnerable on our roads."
Shelly-Ann Fraser-Pryce

Main: Shelly-Ann Fraser-Pryce, Jamaican Olympic 100m champion, pledging her support for the Long Short Walk at the UN, with Zenani Dlamini-Mandela, South African Ambassador to Argentina
Opposite: Prime Minister of Jamaica Portia Simpson-Miller, with Shelly-Ann Fraser-Pryce and Zoleka Mandela

日本 JAPAN ON THE RISE

Japan's auto and motor sports cultures have often provided prescient views of world trends and when the country's sport and business concerns have retrenched it's often been the shape of things to come globally. So, with racing involvement on the rise and car sales bouyant, it looks like Japan is ready to take on the world again...

JPN SPECIAL REPORT

HONDA'S NEW POWER SURGE

Five years after its abrupt withdrawal from FormulaOne at the height of the global economic meltdown, Honda is returning to the sport, tempted back by an irrestible engineering challenge

TEXT: JUSTIN HYNES

From the outside, Formula One often seems a self-contained phenomenon, a sport carrying enough self-generated momentum to be inured from the vagaries of the wider world in which it operates. The truth, though, is naturally more complex, and the history of the series regularly mirrors that of the global automotive industry.

The garagistas of the sport's golden age gave way to a more manufacturer-driven sport in the 1970s as the marketing value of Formula One became apparent. The global economic boom of the 1990s gradually saw car makers hold sway as budgets spiralled. Privateers were marginalised and then, in the early years of this century, sidelined almost competely as post 9/11 economic uncertainty saw sponsorship input plummet.

So, when global financial markets collapsed towards the end of 2007, it was only a matter of time before the effects were felt inside Formula One. And when panicked announcements of withdrawal from the sport began to materialise, they were, to some degree, met with sighs of resignation. Except one.

While the 2009 exit of Toyota and the withdrawal of Bridgestone the following year were tough on the sport, they were understandable. Toyota had, after all, endured the frustration of a multi-year, multi-billion dollar F1 spend for no discernible glorious return, while Bridgestone, it can be said, had already extracted maximum value from their spell as the series' single tyre supplier.

What was shocking, however, was that the first major announcement, in December 2008, came from Honda. Citing the "quickly deteriorating operating environment facing the global auto industry", company president Takeo Fukui said Honda had to "protect its core business activities ▸

GLORY DAYS

Honda's first partnership with McLaren yielded 44 grand prix victories from 160 race starts across four seasons. Thirty of those wins were delivered by the incomparable Aytron Senna, seen here at the wheel of the team's MP4/4 at Suzuka in 1988.

PHOTOGRAPHY: SUTTON IMAGES

AUTO / FOCUS

JPN SPECIAL REPORT

POWER PLAYER

Honda's Chief Officer of Motorsports, Yasuhisa Arai, who says Honda's biggest challenge with F1's new power unit regulations will be "thermal energy management or exhaust gas energy recovery. We need to be very efficient in that aspect."

"THE ENVIRONMENTAL TECHNOLOGY AND F1 RACE ASPECTS MERGING INTO ONE REGULATION INSPIRED US TO MAKE THE DECISION TO COME BACK"

YASUHISA ARAI, HONDA

POWER PARTNERS

McLaren Team Principal Martin Whitmarsh with Honda President Takanobu Ito. The latest partnership between the racing legends will, said Ito, "inspire even greater development of our own advanced technologies".

and secure the long term as widespread uncertainties in the economics around the globe continue to mount".

The surprise element of the revelation was not in the Japanese company's acknowledgement that it was suffering the pain of the global contraction but stemmed more from the fact it was Honda that was the first to mark Formula One down as an unnecessary extravagance.

From the time of the company's first stint in the top echelon (1964-'68) when Richie Ginther delivered the brand its first win, in Mexico in 1965, to its glory years as an engine supplier in the 1980s, when its powerplants provided the springboard for Williams and McLaren to claim six Constructors' Championships between them, F1 has been woven into Honda's DNA. The brand has always seen motor sport as the perfect testbed for technical innovation and as the ideal proving ground for young engineers.

So when it axed its F1 programme with almost unseemly haste at the end of 2008, there were many who insisted that a brand whose engineering philosophy is so heavily interlinked with motor sport would not be absent for long.

And they have been proved right. Just over four years after the '08 bombshell, Honda president Takanobu Ito, who took over from Fukui in 2009, announced in May that the company will return to F1 in 2015, partnering once again with McLaren as an engine supplier. The reasoning, he said, was simple – the technical challenge of the new engine regulations introduced by the FIA for the 2014 season and beyond was a tempation the manufacturer could not resist.

"Honda has a long history of advancing our technologies and nurturing our people by participating in the world's most prestigious automobile racing series," said Ito. "The new F1 regulations with their significant environmental focus will inspire even greater development of our own advanced technologies."

Honda's Chief Officer of Motorsports, Yasuhisa Arai, who will oversee the firm's next great F1 adventure, concurs.

"The return now is partly influenced by the regulation changes," he says. "The environmental technology and F1 race aspects merging into one regulation inspired us to make the decision to come back.

"We have had some extraordinary achievements with our turbo F1 engines in the past. Honda likes to challenge within ourselves to create new powertrains adapted to the new regulation. Also, with the introduction of these new regulations, we can expect more F1 technologies to be directly fed back to our mass production models.

"Moreover, I want our young engineers to learn from this experience," he adds. "We have many engineers who have voiced their wishes to participate in F1, and I want to make those dreams come true."

The partnership with McLaren has the potential to make those dreams real. Between 1988 and 1992, Honda powered the British team to 44 grand prix victories, four Constructors' Championships and four Drivers' Championships. Arai admits that the renewal of the relationship is exciting.

"We have had a great history together – 15 wins out of 16 races in 1988," says Arai. "But more important is the mutual respect we have for each other's work ethic and processes. Also, we have the same mentality or feel when we pursue victory and that is very important."

There is, of course, a not so comfortable subtext to this partnership. In its last spell in the sport, Honda moved from being an engine supplier to British American Racing and Jordan to full ownership and operation of BAR from 2005 onwards. The period as a constructor was not a happy one, however, with just one victory being scored, by Jenson Button in a rain-hit race in Hungary after the Briton had started a lowly 14th. Indeed, the 2008 season was the least successful of all, with just one top-five finish achieved in the campaign, courtesy of Rubens Barrichello, who appeared on the podium for the first time in two years at the British GP. Honda, says Arai, have learned the lessons of those years.

"We are thankful that [as a constructor] we were able to experience things other than the actual engineering, such as team and race management, track services, logistics, etc," he says. "However, we had very little expertise in these fields at that time, and we learned the difficulties of it. Coming into F1 now, we wanted to participate with the experts in the chassis development field, so that we as Honda can focus on our expertise of engine building."

In light of the engine formula set out by the FIA for 2014 and beyond – a 1.6-litre, turbo-charged hybrid power unit heavily reliant on electric motors – that expertise will be heavily taxed.

"There are some parts of the new regulation that are very stringent, and there are some parts where we can be creative," says Arai. "The new regulation is more conscious of environmental technologies and Honda has a long experience in this field, especially on hybrid technologies.

"The engine itself will be of smaller displacement, but the intention of the new regulation is to make the car as fast as it is in the current F1 season, with less fuel consumption and similar lap times. I think the biggest challenge will be thermal energy management or exhaust gas energy recovery. We need to be very efficient in that aspect while running the car. I believe this technology can be applied to mass production vehicles, and this is one of the values in participating in F1 from an engineering point of view."

To meet the challenge, Honda foresook the chance to compete in year one of the new regulations and the first example of its efforts will take to the track with McLaren in 2015. While it would appear on the surface to be a sensible decision, in that, unlike during its last F1 involvement it won't make costly mistakes in public, Arai says that the wait has its demerits.

"There are both advantages and disadvantages of participating from 2015," he admits. "Many things will happen during the F1 season, and we are in a fortunate situation to be able to observe what will happen. However, as we are only able to observe, we cannot physically be at the track to see the problems. Other teams can improve on their problems and progress as the race goes on. How they will progress will be a mystery to us and our engineers must rely on our imaginations."

Honda's imagination has so far extended to the release of audio recordings of its new power unit running on a dyno, though the powerplant itself has yet to be seen. That situation is likely to persist says a cagey Arai.

"We have recently started engine fire-up in Japan," says. "This is a work in progress, so we have not yet determined the time to reveal the new engine. I cannot tell you the actual technical details on the current progression just yet, but in current F1 standards, successful simulation testing is sometimes more efficient than the conventional development methods that rely on proving grounds."

Arai and the company might be reticent about revealing any details of the power unit's make-up, but there is one area in which they are bullish, tradtionally so, and that's in how they will approach their return to F1. "We are fully aware that F1 is not an easy challenge," insists Arai," but we will make every effort to win as early as possible." It is, after all, the Honda way. ■

AUTO / FOCUS

JPN SPECIAL REPORT

FACING THE FUTURE

With over 17 million members the Japanese Automobile Federation is a road and racing powerhouse, but one facing challenges. Here, senior club figures explain how the JAF is meeting them

TEXT: JUSTIN HYNES

JAF's Executive Vice President Takayoshi Yoshiro, who says an ageing population and ageing infrastructure are cause afor concern for the Japanese club.

Japan is often referenced out as a bellwether for many of the social trends set to impact on the motoring world in the coming decades – a country where huge urbanisation has given rise to a greater Tokyo megalopolis of upwards of 35 million people, where a steadily declining birth rate and an ageing population are leading to decreasing rates of car ownership and where technological infrastructural integration is a given.

The place of the country's motoring federation in all of this should, then, be an indicator of what's to come for other such organisations, in both the motoring and motor sport worlds, especially as, with more than 17 million members, the club has a vast resource from which to draw information and conclusions.

In the road car environment, the club's Executive Vice President, Takayoshi Yashiro, points to a number of issues facing the country's motorists.

"There are concerns about a decrease in future vehicle users due to an ageing population with a diminishing number of children and the trend that fewer young people drive," he said. "There are issues regarding the burden of maintenance and improvement costs associated with ageing facilities such as expressways that were built during an age of high economic growth and rapid motorisation, as well as measures to prevent traffic accidents in an ageing society that frequently involve elderly people."

The club is taking steps to address these concerns, however.

"Due to changes in society and the car use environment, as well as current economic uncertainties, it is becoming difficult to justify annual membership fees when only providing road accident rescue services and various types of driving related information services," says Yashiro. "It is necessary to explore options for a transition to a user-based organisation with increased member participation through the utilisation of SNS (Social Network Services), the development of new services and the further improvement of existing services."

In relation to Japan's ageing population demographic, the club has been very active, providing a number of skill improvement courses for senior drivers in the country.

"The elderly are insecure about their reduced cognitive ability and driving skills. If a driving support system were able to relieve these anxieties, driving opportunities would likely increase," says Yashiro.

As such, the club, in co-operation with the National Police Agency, has run a number of safe driving workshops for drivers in the 65-plus age group in order to improve driving skills and raise awareness of impaired bodily function.

The club also sees potential in delivering expanded services to its older members. "Those in the senior and elderly age bracket (65-74) have the luxury of time and money. We would like to expand services related to tourism for those people," says Yashiro.

As part of that process the club has spent considerable time developing leisure travel services for the future. "We have been focusing on establishing tourism agreements with local governments," Yashiro explains. "Recently, local governments have shifted away from reliance on travel agencies for attracting tourists towards disseminating local tourist information by themselves, and there have been a number of local governments that have produced impressive results.

"Local governments that want to promote regions only accessible by train or bus have concluded tourism agreements with us to advance travel by car and boost regional tourism. We have concluded agreements with 187 local governments, representing approximately 10 per cent of the total number of municipalities."

How that tourism is conducted is also of concern to the club. Aware that traditional roadside assistance-based business models are under threat from future trends in car-sharing, automated vehicle use and even through the simple fact that modern cars are more reliable than in the past, the club is keen to embrace new technology.

"Although it is possible that membership enrolment would increase during the development stage of new technologies, it is unlikely that this would be a sustainable source of revenue," concedes Yashiro. "Therefore, in the roadside assistance department, we would like to maintain our current approach to rescue requests while at the same time responding to changes by promoting support for new technologies and future trends towards electric vehicles,

"THERE ARE ISSUES REGARDING THE MAINTENANCE AND IMPROVEMENT COSTS ASSOCIATED WITH AGEING FACILITIES SUCH AS EXPRESSWAYS"

TAKAYOSHI YASHIRO, JAF

PHOTOGRAPHY: SHUTTERSTOCK

AUTO / FOCUS

JPN SPECIAL REPORT

ROBUST RACING
With well-established domestic series such as Formula 3 (left) and Super GT (below) and a passionate fanbase (bottom right) Japanese motor sport is well able to stand the absence of any stars such as Kamui Kobayashi (bottom left) from the world stage in Formula One.

"[WE] AIM TO INTEGRATE THE REGULATIONS ON VEHICLES OF BOTH SUPER GT AND DTM IN ORDER TO REVITALISE JAPAN'S BIG RACES."

YOSHIKI HIYAMA, JAF

PHOTOGRAPHY: LAT

JAF's Secretary General Motorsports, Yoshiki Hiyama: "Japan still enjoys being the world's leading superpower in motor sports."

hydrogen gas vehicles, and lightweight cars. We would also like to enhance productivity (cost-consciousness) by developing new technologies and equipment suitable to the modern era."

The societal and economic trends are mirrored in the world of motor sport, also looked after by JAF as the country's ASN.

"The popularity of Japanese motor sports started to decline from the 1990s onwards due to the impact of the falling birth rate and the ageing population, as well as through the diversification of people's interests," explains JAF's Secretary General Motorsports Yoshiki Hiyama. "With the decline continuing even since the 2000s, there has been a decrease in the number of motor sports licenses issued and the number of events held.

"What is even worse is that there has been a successive withdrawal of domestic companies from motor sports due to the worldwide economic recession that began in 2007 and which inflicted heavy damage on the Japanese automobile industry," he adds. "Not only did Subaru withdraw from the World Rally Championship at the end of that year, Suzuki also stopped participating a year later, even though it was its first time to participate. In the Formula One World Championship, Honda pulled out at the end of 2008 and Toyota in 2009. Bridgestone also decided to terminate supplying tyres at the end of 2010."

While the decline has impacted upon interest – the club still boasted over 60,000 competition licence holders and 6,500 kart licence holders in 2012 – it hasn't been as damaging as expected, in part thanks to measures put in place by the club to promote motor sport involvement.

"In 2008, the JAF set up an organisation called the Motor Sports Promotion Working Group and that has drawn up promotional measures for revitalisation of the field," says Hiyama. "Since 2000 we have been engaged in implementing a number of specific measures in accordance with the themes of the promotion, including 'furthering the understanding of motor sports through public relations campaigns', 'the facilitation of watching and joining motor sports', 'the improvement of the relationship between motor sports and society', and finally 'the establishment of a motor sports culture'.

"Holding to the idea that the facilitation of watching and joining motor sports is an immediate issue, we have addressed the promotion of holding workshops for National B drivers' licenses, which are workshops to introduce motor sports, and informational activity on motor sports through SNS. These campaigns have successfully resulted in gradual penetration of motor sports culture among the younger generation. Furthermore, a 2–3 per cent growth in the total number of motor sports licenses to be issued in 2013 is expected compared to 2012."

The result is a more healthy motor sports environment, with good access for spectators and racers across the sporting landscape – from grassroots level right up to top-level international competition.

"This year marks the 50th anniversary since full-scale automobile motor sports were introduced to Japan, and today our country is entering a mature phase," says Hiyama. "FIA championships – F1's Japanese Grand Prix, the World Endurance Championship, and the World Touring Car Championship – are regularly held in Japan. On the other hand, national championships consist of well-established races, including the Japanese Championship Super Formula, the Japanese Formula 3 Championship, and the Super GT International Series.

"Other than circuit races, the Japanese Rally Championship, the Japanese Speed Event Championship, and the All-Japan Karting Championship take place as series. In other words, these various championships indicate that Japan still enjoys being the world's leading superpower in motor sports."

Part of its quest to maintain that status is the ongoing discussion about integrating aspects of Japan's Super GT series rules with those of Germany's DTM.

"The joint meetings on integration of the series' technical regulations have been held since 2010 between DMSB/ITR and Japanese delegates, including JAF," says Hiyama. "The consultation aims to integrate the regulations on vehicles of both Super GT, comprising Japan's big three manufacturers, Honda, Nissan, and Toyota, and DTM, comprising Germany's big three manufacturers, in order to revitalise Japan's big races. The integration will allow for mutual entry of participants from 2014. Also, some interactive events in both Japanese and German series can be anticipated in the future."

The club is also keen to grow grassroots motor sport involvement and is pursuing a number of schemes in this regard.

"We are furthering the promotion of experience-based driving events using karts and gymkhana," says Hiyama. "Participants can easily join without possessing a license, vehicle, or equipment such as a helmet. The event is designed to encourage participants to obtain licenses through motor sports experience."

Boosting participation also includes "preparing rules that are understandable for beginners in motor sports and technical regulations that have a low cost for revisions, developing competition categories in which participants can easily participate with their own cars and creating new competition disciplines," adds Hiyama. "JAF has decided to give approval to drift competitions, which had taken place independently, to make them JAF-sanctioned events from 2013."

It all paints a picture of a motor sport culture bouncing back from a period of stagnation. Hiyama, though, is still cautious, saying that success in the coming years will largely depend on an appetite for competition among manufacturers.

"Motor sport at the level of an FIA championship and the Japanese championships is likely to be dependent on the business conditions of automobile manufacturers," he says.

"However, recently conditions have been favourable for Japanese manufacturers to make an investment in motor sports because of the weak Japanese yen, starting from the beginning of this year. The appropriate creation of a category suitable for the motor sports strategy of manufacturers is the key for both FIA and JAF.

"On the other hand, the government has made a final decision on increasing the consumption tax in a phased manner from 5 per cent today to 8 per cent in April 2014 and 10 per cent in the fall of 2015. The impact of the tax rise on grassroots motor sports and the audiences of races is still unknown." ■

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JPN SPECIAL REPORT

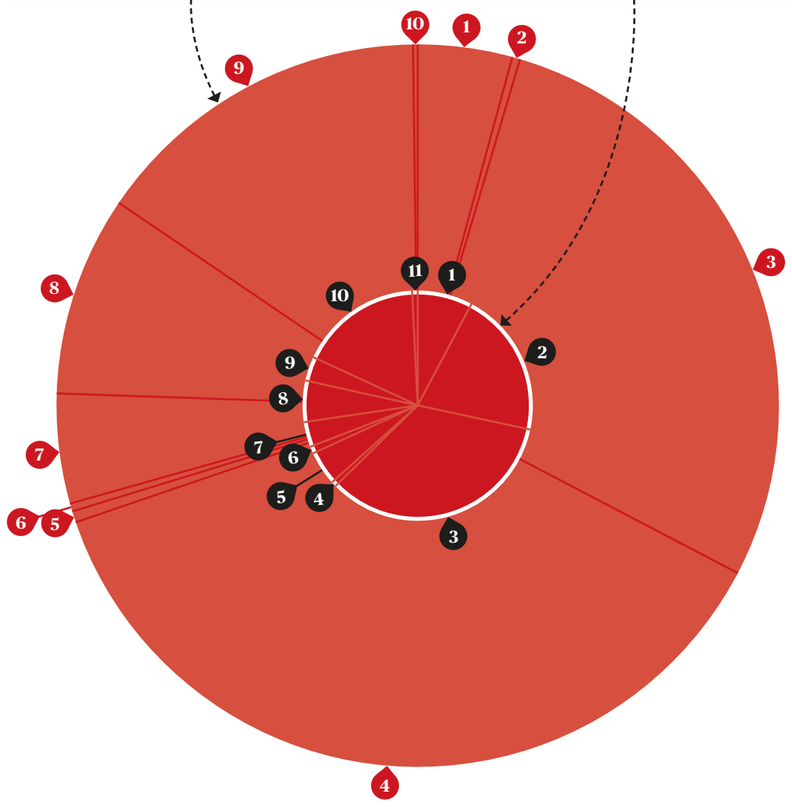
TOTAL NUMBER OF MOTORSPORT LICENCES ISSUED 2012

Racecar licences *60,224 total*

1. **International** *(class A, B, and C)* *2,547*
2. **International solar car** *216*
3. **National A** *16,962*
4. **National class B** *22,359*
5. **International entrant** *303*
6. **National entrant** *221*
7. **Official 1st class** *2,959*
8. **Official 2nd class** *5,392*
9. **Official 3rd class** *9,256*
10. **Expert license** *9*

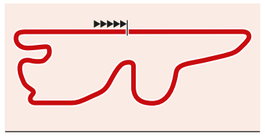
Kart licences *6,554 total*

1. **International** *(class A, B, & C)* *509*
2. **National A** *1,352*
3. **National B** *2,374*
4. **Junior International** *47*
5. **Junior National** *(class A & B)* *315*
6. **International entrant** *65*
7. **National entrant** *231*
8. **Official 1st class** *408*
9. **Official 2nd class** *213*
10. **Official 3rd class** *1,054*
11. **Expert** *5*



JAPANESE MOTORSPORT

The Japanese Automobile Federation has approved more than 350 national circuits across the country, including kart courses, dirt tracks, gymkhana courses and motorcycle tracks. Here are some of the major circuits and key statistics for Japan's flourishing motor sport market.



Fuji Int. Speedway

Built: 1966

Length: *4.563km*

0 1 2 3 4 5

Lap Record: *77.287s*
Felipe Massa 2008,
Formula One

Location: SUNTO-GUN,
Shizuoka prefecture

Main Events :
FIA World Endurance Championship (2012-),
Formula One Grand Prix (2007-2008),
Super Formula Championship,
Super GT Championship.

Suzuka Circuit

Built: 1962

Length: *5.807km*

0 1 2 3 4 5

Lap Record: *88.954s*
Michael Schumacher 2006,
Formula One

Location: SUNTO-GUN,
Mie prefecture

Main Events:
Formula One Grand Prix, World Touring Car Championship, Super Formula Championship.

TEXT: AKAI KUNIHIKO/JAF ILLSUTRATION: FRASER LYNESS

Sendai Highland

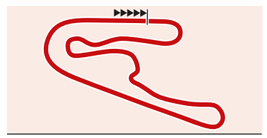
Built: 1974

Length: *4.063km*

0 1 2 3 4 5

Location: MIYAGI-GUN,
Miyagi prefecture

Main Events:
GT Championship (1994-1998),
F3 Championship (1987-2007)



Tsukuba Circuit

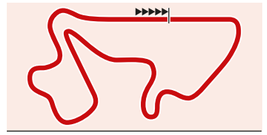
Built: 1970

Length: *2.07km*

0 1 2 3 4 5

Location: SHIMOZUMA CITY,
Ibaraki prefecture

Main Events:
No main championship race due to short length of the track.
F3 Championship and Touring Car Championship (-2001),
Japanese Motorcycle Championship (-2013)



Autopolis

Built: 1990

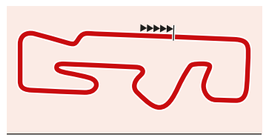
Length: *4.674km*

0 1 2 3 4 5

Lap Record: *87.188*
Teo Fabi 1991,
SilkCut Jaguar Group C

Location: HITA CITY,
Oita prefecture

Main Events: Super Formula Championship,
Super GT Championship,
Japanese Motorcycle Championship
World Sportscar Championship (1991)



Tokachi Speedway

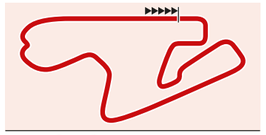
Built: 1993

Length: *5.091km*

0 1 2 3 4 5

Location: KASAI-GUN,
Hokkaido prefecture

Main Events : *No particular event at present*
GT Championship (2004),
Formula Nippon, Touring Car Championship (2008)



Sportland Sugo

Built: 1975

Length: *3.737km*

0 1 2 3 4 5

Lap Record: *65.843s*
Loic Duval 2010,
Formula Nippon

Location: SHIBATA-GUN,
Miyagi prefecture

Main Events: Super Formula Championship
Super GT Championship
Super Endurance Championship (touring car)

Sodegaura Forest Raceway

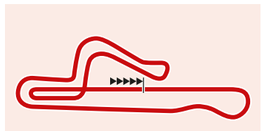
Built: 2009

Length: *2.436km*

0 1 2 3 4 5

Location: SODEGAURA CITY,
Chiba prefecture

Main Events:
No big events



Central Circuit

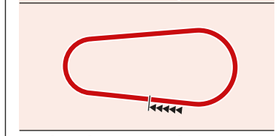
Built: 1996

Length: *2.804km*

0 1 2 3 4 5

Location: TAKA-GUN,
Hyogo Prefecture

Main Events:
No big events



Okayama Kokusai Circuit

Built: 1990

Length: *3.703km*

0 1 2 3 4 5

Lap Record: *70.218s*
Ayrton Senna 1994,
Formula One

Location: AIDA-GUN,
Okayama prefecture

Main Events:
Formula One Pacific Grand Prix (1994-1995), World Touring Car Championship (2008-2010)
Super GT Championship,
Japan Motorcycle Championship

Twin Ring Motegi

Built: 1997

Length: *2.412km* (Oval Track)

0 1 2 3 4 5

4.801km(Road Course)

0 1 2 3 4 5

Location: HAGA-GUN,
Tochigi prefecture

Lap Record: *25.463s*
Gil de Ferran 1999, IndyCar–Oval
92.989s
Andre Lotterer 2012,
Formula Nippon-Road Course

Main Events:
IndyCar Championship Japan Round (2003-2011)
Super Formula Championship,
Super GT Championship, MotoGP,
Japan Motorcycle Championship,
Super Endurance Championship

Most victorious drivers in each national category

	TOTAL
Formula 2: 1978-1986 SATORU NAKAJIMA	18
Formula 3000: 1988-1995 KAZUYOSHI HOSHINO	15
Formula Nippon: 1996-2012 SATOSHI MOTOYAMA	28
Super Formula: 2013-present ANDRE LOTTERER	2

AUTO / FOCUS

JPN SPECIAL REPORT

MADE IN JAPAN

Japan's auto industry was rocked by the global recession but worse was to come, in the shape of a massive natural disaster. Yet despite it all, Japan's car makers have bounced back better than ever...

TEXT: BEN BARRY

Five years ago, motor sport worldwide was rocked by the sudden departure of major car manufacturers from top-flight championships. Key Japanese brands accounted for some of the biggest headlines. The global financial crisis had bitten hard and motor sport was exposed as an indulgence, an unnecessary distraction that frittered away cash while the economy flatlined.

It started on 5 December, 2008 when Honda stunned the world and quit Formula One. That was the watershed moment. By the middle of the month both Suzuki and Subaru had exited the World Rally Championship, all firms citing deteriorating economic conditions that had been brought on by the sub-prime mortgage crisis in the US and aggravated by the ensuing withdrawal of credit to would-be borrowers elsewhere – the so-called 'credit crunch'.

How long, the whispers went, could Toyota keep pumping cash into its F1 operation? The answer came on 11 April 2009. After nine years and $2.4billion spent without even a win, let alone a championship, one of the world's biggest car makers reluctantly handed Timo Glock and Jarno Trulli their severance notices.

Now, five years on, there's finally light at the end of the tunnel. Sales have recovered, Toyota has switched its attention back to Le Mans and the World Endurance Championship, while Honda will reignite its legendary partnership with McLaren in the 2015 F1 season.

But back in late 2008, Japan's car makers – and those of Europe and the US too – faced the darkest days in their long and storied histories.

Bob Lutz, a veteran car boss who witnessed the rise of the Japanese car industry while working at Ford, BMW and GM – where he saw the company relinquish its crown as the world's biggest car maker to Toyota in 2008 – blames the latter's fall from grace on complacency, above all.

There's doubtless some truth in that, but the performance of the Japanese automotive industry during the global financial crisis was caught in a perfect storm of events both within and beyond the sector's control. As Max Warburton of industry analysts Bernstein Research argues, "The question of whether Japan's car industry was worse prepared for the financial crisis than other countries ▸

PHOTOGRAPHY: ISTOCKPHOTO

BOUNCING BACK

Even the devastation caused by 2011's Tohoku earthquake was overcome by the Japanese auto industry with many plants returning to full production just months after the disaster struck.

"WE HAVE LEARNED THE CRITICAL LESSON THAT AN INCREASE IN PRODUCTION DOES NOT NECESSARILY EQUATE TO GROWTH."

AKIO TOYODA, TOYOTA

is hard to answer, because soon after the financial crisis, the country was hit by a series of other challenges – the earthquake, tsunami and Fukushima nuclear disaster, plus the Thai floods, which impacted on the Japanese industry's supply chain and, most importantly, the soaring Yen, making exports less competitive.

"In isolation, one could argue Japan weathered the financial crisis better than some other car-producing nations, because the Japanese OEMs had already had 20 years of practice at shrinking at home given Japan's economic woes," adds Warburton. "And it's notable that the financial crisis did not drive any to bankruptcy, unlike GM and Chrysler in the United States."

Leaf through any Japanese car maker's annual reports and the scale of the downturn becomes apparent. With production closing in on 9 million units in 2008, Toyota slipped below 8m in 2009 before settling around the 7.3m mark for the next three years. Meanwhile, its stock price slid from ¥7550 Yen in 2007 to a low of ¥3120 in 2009, a low it was still rallying from in 2012.

Honda's sales also slid rapidly, from a high of 3.9m in 2008, they decreased year-on-year to a low of 3.1m in 2012.

The market positioning of the majority of Japanese models didn't help: less appealing than the premium German marques that consumers continued to trade up to, yet faced with increasing competition from Hyundai/Kia, a Korean company that barely 10 years ago offered almost entirely derisory products, but was now turning out cars that looked as good or better than the Japanese opposition, that drove almost as well and were cheaper and came with better warranties too.

The Koreans proved to be the automotive Lidls and Aldis of the financial crisis, the butt of a joke that became less and less amusing as times got harder. The sales figures tell their own story. As the Japanese makers steadily lost ground, so the Koreans gained it. Kia alone doubled its global retail volume from 1,375,000 in 2008 to 2,710,017 in 2012, its global market share ramping up from 1.9 to 3.4 per cent over the same period.

Toyota's 'unintended acceleration' PR disaster of 2009 couldn't have come at a worse time, but has since been categorically disproven, US transportation secretary Ray LaHood stating that "the verdict is in. There is no electronic-based cause for unintended high-speed acceleration in Toyotas. Period." And although a perception lingers that a Toyota is more likely to be recalled than other models, Toyota PR boss Scott Brownlee says, "We don't have more recalls than other brands. We're about mid-table the last time I checked."

Then came the Great East Japan Earthquake on 11 March 2011, triggering a tsunami that caused the world's largest nuclear catastrophe since Chernobyl. There were power shortages, supply chains wre disrupted and employees killed. Toyota lost production of 370,000 vehicles.

Yet, once again, the Japanese rebounded, the natural disaster proving to be a low point from which things could only get better. As early as May, 2011, Nissan's Iwaki plant in Fukushima Prefecture was again running at nearly full capacity, helping the car manufacturer to produce a record 4.7m vehicles in 2011, up a whopping 14 per cent on the year before.

"The auto makers did an amazing job of restoring supply chains, restarting production and recovering volumes, particularly Nissan," says Warburton. "But it was definitely a shock to each of them and one that has forced them to rethink sourcing, parts inventory levels and production footprints."

As the US economy recovered – a market that typically accounts for 25 per cent of Japanese car sales – so too did the fortunes of the Far Eastern car makers for whom it had become so important. Toyota regained its place as the world's top-selling car maker in 2012 after slipping to third behind GM and VW in 2011. Sales continued to bounce back to pre-recession levels in 2013, Toyota nudging back up to 8.7m, Honda edging past 4m.

What doesn't kill you makes you stronger, goes the old adage. And tough as the previous five years have been, lessons have been learned and steps taken to better insulate the Japanese car industry from any similar shocks in the future.

"Since 2009, Toyota has faced a series of prolonged crises," says company president Akio Toyoda in the firm's latest annual report. "Looking back, these crises allowed us to gain invaluable experience and taught us many truths that would have remained hidden if conditions had been more settled.

"We are now more attuned to the importance of sustainable growth and have learned the critical lesson that an increase in production does not necessarily equate to growth," he concluded.

Whether it's been Honda powering Ayrton Senna to F1 victories, Nissan's Skyline dominating Australian Touring Cars, or Subaru's Impreza making champions of Colin McRae, Richard Burns and Petter Solberg, Japan's car makers have made a lasting impact on motor sport.

The importance of their return to health won't be lost on race fans. ■

WATCHING BRIEF

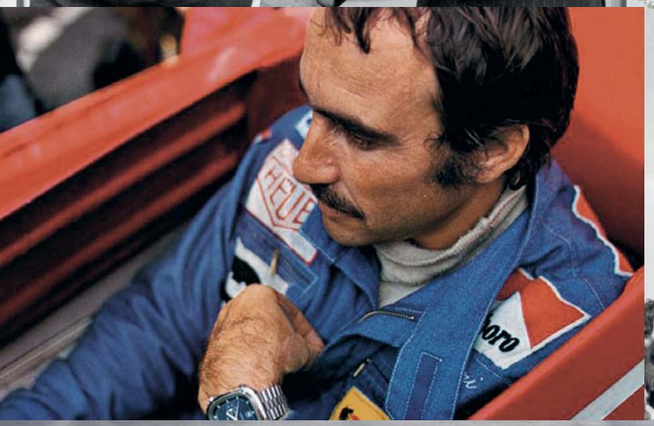
Style, sophistication, and racing success. Jack Heuer, 81, has been operating at the sharp end of timekeeping and motor sport for six decades, his family's brand becoming as synonymous with the sport as Ferrari and McLaren.

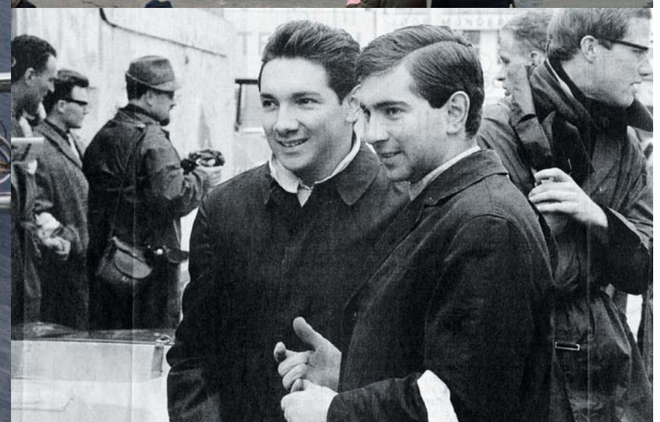
Motor Sport

The Time Of His Life

Almost six decades ago, Jack Heuer took over the reins of his family company and its tradition of motor sport timekeeping. What followed gave rise to some of motor sport's most iconic images and moments.

TEXT: JUSTIN HYNES PHOTOGRAPHY: STEFAN JERMANN





CLOCKWISE FROM TOP: Jack Heuer with British Grand Prix winner Jo Siffert, the man he credits with kickstarting his Formula One timing and sponsorship activities; Jo Siffert in action at the 1968 British GP and (below) celebrating his maiden F1 win; Siffert the racing icon; Siffert, to rear, lines up on the grid with Jackie Stewart, centre, and Graham Hill, front, at the 1969 British GP; Pedro and Ricardo Rodriguez, the doomed Mexican racers who inspired Heuer to create his Carrera Panamericana watch; Siffert racing at the 1969 Monaco GP; Clay Regazzoni, who gave Heuer his entry into the realm of Enzo Ferrari.

Jack Heuer leans back in his chair and chuckles. “My best motor sport memories?” he says. “That’s... maybe a bit difficult.” To be fair, it is a slightly facile question, akin to asking Stirling Moss to pick out his favourite few career laps, for Heuer’s life in motor sport extends almost as far back. He and his watchmaking company have mapped the course of motor racing from the dusty and dangerous cross country races of the mid-1950s, through the golden years of sportscar racing, into the birth of Formula One technical and commercial partnerships and finally through to Tag Heuer’s current status as a grandee Formula One sponsor, a name as inextricably linked with the sport as Ferrari or McLaren themselves.

It’s a lot to consider but after just a moment’s hesitation, Heuer leans forward again and says: “One of the most important people for me was Jo Siffert. I owe him a lot because fundamentally it is through him that I got into this, and I really discovered racing through him.”

The son of a dairy owner from the town of Fribourg in Switzerland, Jo Siffert began his racing career on motorcycles but switched to cars in the late 1950s before entering Formula One as a privateer racer in 1962. He spent the following years building his own team then signed for Briton Rob Walker’s privateer team. In 1968 Siffert scored a first, famous win at the British Grand Prix, taking his customer Lotus 49 to victory ahead of a world class field that included Jacky Ickx, Jackie Stewart, Denny Hulme and Bruce McLaren.

Enter, almost by chance, Jack Heuer. “We had worked for three or four years on creating the first self-winding chronograph and we had spent quite a lot of money on it,” he recalls. “I realised that we had a world’s first, but how do you make that known to the world? The answer to that dilemma came about through sheer coincidence.

“After his win in Britain, Siffert was a big star in Switzerland,” adds Heuer. “One day I was at my golf club, on the putting green, and one of his sponsors was also there. He was a good friend of mine, a beer brewer from the same village as Siffert. He said, ‘Jack, why don’t you sponsor this guy? I’m doing it and he needs help.’ I thought it wasn’t a bad idea, so I went to meet Jo down at the garage he owned. We got on terms very quickly. In exchange for the cash, he had to wear the logo patch and that was it. That’s really where it all started.” ▶

Siffert, however, would go one step further in helping to establish the watch brand in Formula One.

"Jo was a born wheeler-dealer and as part of his deal, I allowed him to buy our chronographs, at the price paid by a retail jeweller," says Heuer. "Now a jeweller takes about 40 or 50 per cent of the retail price, so there's a good margin. Siffert would sell them at about 20 per cent off retail and within about a year most of the team heads, mechanics, engineers and drivers in Formula One were all wearing Heuer chronographs or using our stop watches. That had an unbelievable effect!"

Siffert's tragic death in an accident at Brands Hatch in the UK in 1971 marked the end of one phase of Heuer's Formula One involvement. But his next, and in some ways even more important grand prix relationship, was just around the corner.

"When we were sponsoring Siffert, the whole factory watched the races. Everybody was very proud to be involved," says Heuer, "Then, one day, one of the guys at the factory called me and said Clay Regazzoni is having lunch with the people from Longines, what's going on?"

In 1970, Regazzoni was next in line to Siffert's title as Switzerland's racing hero. He had graduated from Formula Two and a successful stint in sports cars to F1, driving for the sport's most famous marque, Ferrari. For a publicity savvy Swiss company, the dashing driver and the legendary race team made an attractive pairing. Heuer met and agreed a deal with the rising star but at the meeting another opportunity presented itself.

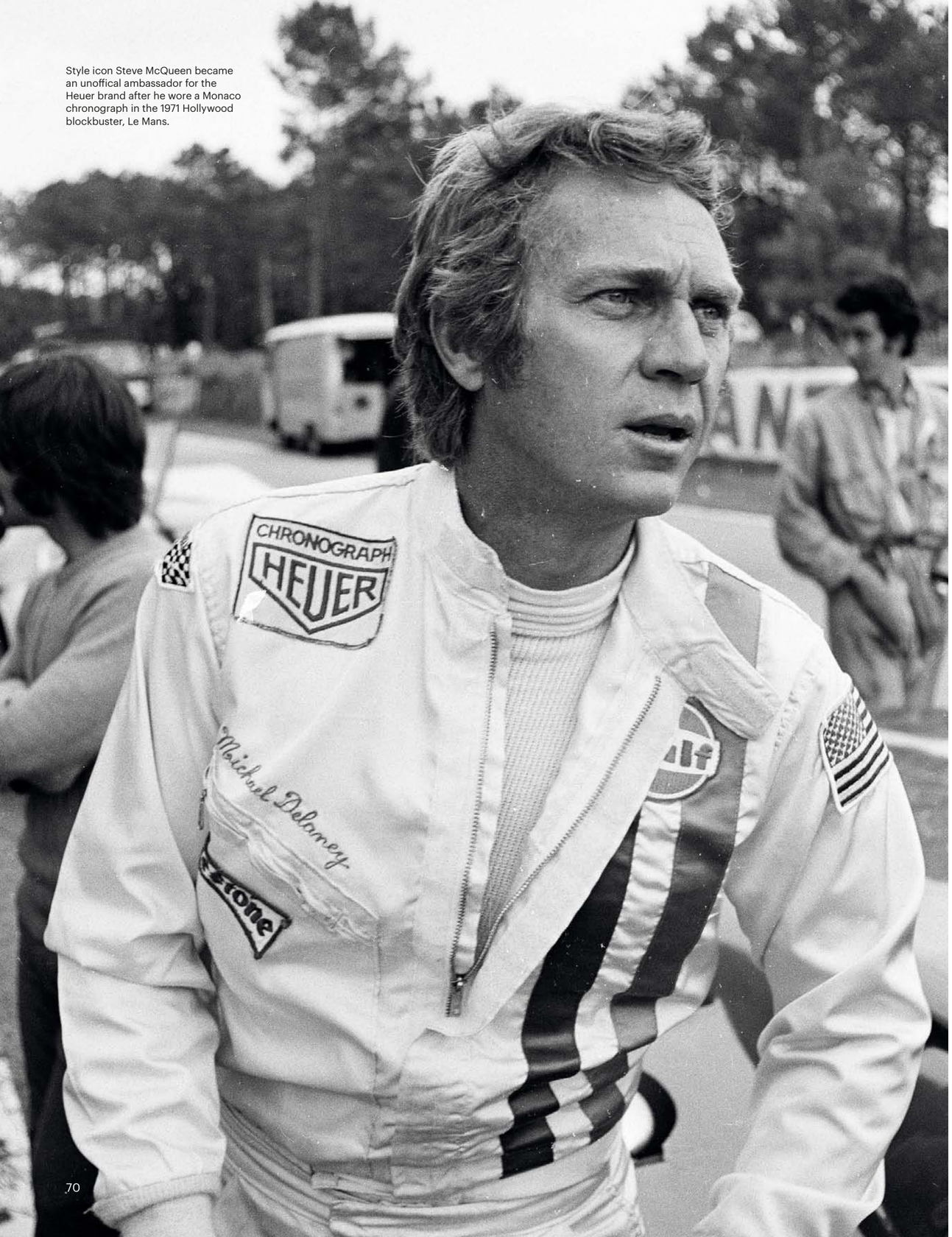
"I also met Piero Ferrari," Heuer explains. "That was the key. Ferrari didn't trust the official timers of Le Mans and wanted better equipment. Le Mans is the most difficult race in the world to time because of the rain, the speed and the darkness, so we made this equipment called the Centigraph Le Mans for them.

"We went in with a draft of a contract to the Commendatore [Enzo Ferrari]," he continues. "He said 'Oh, Mr Heuer, it is okay but you have to help me, the drivers are so expensive'. So we re-negotiated, and I said, 'Fine, as long as you put my branding on the front of the car and the drivers wear one of my chronographs and a patch.' That is what we did, between 1971 and 1979. We worked for nine years with Ferrari and we never paid them any money. We supplied them with technology and people. It was a very interesting time."

As with Siffert, Heuer's relationship with Enzo Ferrari developed too. "I got along quite well with him," he says. "One of the reasons, probably, is that I was the same age as his son Dino.

"He was a tough merchant, though, because he always wanted something additional. I would go and negotiate the contract with Piero and then we would go to the Old Man's office for the signature. The office shades went down, he'd switch on the lamp that was next to the picture of his son, and he would always get something additional. We would sign – with a violet pen, he always had a violet pen – and then we would go over the road and have lunch at Cavallino. We would drink a bottle of Lambrusco and he'd start telling jokes. I've rarely heard jokes as dirty as at those lunches, and we would all laugh the whole time. He was tough but fair, and also very amusing." ▶

CLOCKWISE FROM TOP-LEFT: Gilles Villeneuve at his home race in Canada in 1978; Jack Heuer greets 'Il Commandatore', Enzo Ferrari, who was "tough but fair, and also very amusing" and below Niki Lauda in action at the 1977 Argentinian Grand Prix; three-time F1 World Champion Lauda shares a joke with 1976 champ James Hunt before that year's Belgian GP; Lauda pilots a Ferrari 312T around Montjuic circuit in the Spanish GP of his first championship year, 1975; the purpose-built timing facility built by Heuer at Ferrari's private test track at Fiorano; Heuer with Regazzoni and Lauda.



Style icon Steve McQueen became an unoffical ambassador for the Heuer brand after he wore a Monaco chronograph in the 1971 Hollywood blockbuster, Le Mans.

TIME FRAMED
Jack Heuer at the TAG Heuer Museum in La Chaux-de-Fonds, Switzerland

PHOTOGRAPHY: LAT, DPPI, STEFAN JERMANN

The period with Ferrari, while very successful from a sporting perspective, was a tumultuous time commercially for Heuer's company. The mid-'70s saw the fortunes of Swiss watch manufacturers tumble, as Japanese brands grabbed the lion's share of the market with non-mechanical timing devices in the so-called 'Quartz Crisis'. Heuer, though, sees the period differently, blaming currency market issues and a huge rise in the value of the Swiss Franc for the decline in sales of Swiss timepieces.

"Our watches tripled in retail price in America, and the Japanese took over the market," he explains. "We pulled through until 1979, because Ferrari came with additional demands. They had a private race track at Fiorano and wanted a custom-made timing system, so we built that for them. We put in 45 photo cells. If there was a kerb, we placed one at the entry, one at the apex, one at the exit. And then all of that would be graphically interpreted.

"Jacky Ickx, Niki Lauda, Gilles Villeneuve, they all used it," he adds. "I asked them how they found it, and they said it was a torture chamber but it was the best place to set-up a Formula One car. Ferrari, who hadn't been champions since 1964, were suddenly winning races again, then in '75 and in '77 they were champions, with Niki."

It was, however, the beginning of the end of an era. By 1982 the company was in trouble and Heuer was forced to sell his majority stake to outside investors. In 1985 the company was sold to the TAG group – and Heuer left watchmaking and motor sport altogether.

For the next 15 years, he focused on building up a company specialising in LCD technology. Retirement was not for him, however, and after TAG Heuer was bought by the luxury goods giant LVMH in 1999, he was enticed back to the company he founded, now in an ambassadorial role. In the process, he revisited one of his first and perhaps biggest successes.

"I was doing the timekeeping at the 12 Hours of Sebring in the early 1960s and I met the Rodriguez brothers, Pedro and Ricardo, there. They told me about this incredible race in Mexico and I fell in love with its name."

The Carrera Panamericana, stretching from the US border in the north of Mexico to the frontier with Guatemala in the south, was one of motor sport's most exotic events, and one of the most dangerous.

"The Rodriguez brothers were something like 19 and 20 when I met them," explains Heuer. "Their parents accompanied them to these foreign races and Ferrari had put at their disposal a race car from New York, with mechanics, for these boys who were just teenagers really. The mother said to me that she was so relieved that they were young as otherwise they might have killed themselves in the Carrera. The race was cancelled in 1955 after 27 people lost their lives in the space of five years. But they were still talking about it. I heard the name and it stirred all these emotions in me. I came home and registered the name for Heuer and then I created a watch for it.

"The really dramatic thing was that one of the boys died the same year I met him (1962) in a race car and the other brother was killed some years later. The Carrera watch has a dramatic name that conjures up dramatic emotions and it's now our key brand."

Another key brand in the company's line-up has been the Monaco. Its most famous ambassador was Hollywood screen legend Steve McQueen, though when the actor wore the watch in the classic racing film, 'Le Mans', it was impossible to envisage the longevity of the association.

"With 'Le Mans', Joe Siffert and Derek Bell had been hired to teach Steve McQueen how to drive these unbelievable sports cars and the two drivers got quite friendly with him, especially Jo," recalls Heuer. "At a certain point the producer said to McQueen, 'Listen, you've changed the colour of your overalls a few times now. You have to decide how you want to look for the whole film because tomorrow we start shooting for real'. McQueen said he wanted to look like Siffert, as he had become a close friend to him – they both had a similar background, very poor. So Siffert ran into his caravan and pulled out another overall and handed it over. Then Jo said, 'Listen, you must also wear the watch'. A Heuer watch.

"We sent over a box of chronographs and the prop master said he needed three identical watches. He needed two for the racing sequences, in case one broke, and he also needed one for the still photography and that that had to be absolutely pristine. I think we only had those three identical Monacos at the time and that was it!"

And with that, Heuer looks at his own chronograph and signals that it's time to go – in more ways than one. At the end of this year, Heuer, now 81, will resign his role as Honorary Chairman of the company his family founded in 1860. Standing in the company museum, surrounded by almost 60 years of his own involvement in timekeeping and in motor racing history, he sweeps an arm around the display cabinets and smiles. "It's enough, no?" ■

Governance

WORLD OF SPORT

Earlier this year the FIA joined SportAccord, the international umbrella organisation of sports federations worldwide. But what exactly does the body do? AUTO spoke to its president, Marius Vizer

TEXT: JUSTIN HYNES PHOTOGRAPHY: THIBAUT VIANNEY

For spectators, large-scale international sporting events look like seamlessly-run operations that almost happen of their own accord. Participants seem to gather with no more than casual co-ordination, rules appear to be applied with smooth effectiveness, and results are celebrated with effortless showmanship.

Anyone working behind the scenes, however, will know that running major sport is far more complex, involving the interconnectedness of hundreds, sometimes thousands, of individuals and clubs, as well as the involvement of associated regulatory bodies, officials, volunteers, sponsorship models and media channels.

No organisation has a patent for the most effective way of doing this, and it is in such an environment, where federations of all stripes learn from each other's successes and failures, that SportAccord operates.

Founded in 1967 to represent the common interests of sports federations worldwide, SportAccord has grown from a grouping of 26 federations into a representative body that now includes 109 member organisations from within the community of both Olympic and non-Olympic sports. This year, following its full recognition by the International Olympic Committee (IOC), the FIA became a member.

The question, though, is just how an organisation featuring governing bodies that range in scope from global concerns such as football's governing body, FIFA, the International Association of Athletics Foundations (IAAF) and the Union Cycliste International (UCI) right down to specialist sports groupings such as the Federation of International Lacrosse and the Chinese martial art Wushu, can effectively support all its members.

"SportAccord has a permanent collaboration with all its member organisations whenever necessary in order to ensure the successful development of the sports federations," says the body's president, Marius Vizer, who is also president of the International Judo Federation.

"We can ensure support to all the members and some of our roles are to give support and activity guidance, deliver structural and management models, provide services, including integrity and anti-doping programs, and organise international level events."

Integrity and control of doping have become increasingly large stories in sport and in an era when professional sports events generate huge revenues and when its stars command matching fees, the win-at-all-costs philosophy make match-rigging and performance-enhancement all too tempting for some.

SportAccord, says Vizer, is at the forefront in providing assistance to federations on these issues. "Since the creation of WADA (the World Anti-Doping Authority) in 1999, SportAccord holds a seat at its Executive Committee and Foundation Board, as part of the Olympic Movement Representation," he says. "The SportAccord Doping-Free Sport Unit (DFSU) was established in 2009, in partnership with the IOC and WADA. Through this tripartite agreement, the DFSU provides anti-doping support and assistance in the framework of the World Anti-Doping Code.

"We aid our members in ensuring dope-free sport with the help of the DFSU, which plays a key role in facilitating the liaisons between many of its members and WADA, and ensures daily ongoing anti-doping support and assistance.

"The DFSU has also has developed several tools and activities ensuring the exchange of information and experience with the anti-doping community," he concludes. "It encourages and participates in specific selected strategic projects, especially with federations with limited resources, and it develops consultancy agreements with external experts, such as the Lausanne anti-doping laboratory, for the benefit of all members."

The organisation is also taking action to safeguard the integrity of international sport. "Our integrity department has a close collaboration with our federations, offering them models of work and anti-match-fixing protection. Also, SportAccord is laying the grounds of a world integrity agency," explains Vizer.

While the organisation has more than 40 years of experience in representing sports federations on the world stage at the United Nations, UNESCO and with the IOC, there is still more to achieve, says Vizer.

"We want to refresh the staff structure of SportAccord and to make certain departments more professional," he says. "We want to sign a general collaboration partnership with ANOC (Association of National Olympic Committees) in order to set up the World Integrity Agency. We wish to continue and to develop the cooperation with WADA and we would also like to establish regional head offices in Abu Dhabi, Tokyo, Rio, Miami, Moscow and Rome to promote the SportAccord image at a regional and international level."

THE FIA AND THE IOC

Following a two-year period of assessment, in September of this year the FIA was granted full recognition by the International Olympic Committee. The decision confirmed that the statutes, practice and activities of the FIA are in full conformity with the Olympic Charter, including the adoption and implementation of the World Anti-Doping Code. The announcement was the final step in the integration of the FIA into the international sports community, a process initiated by FIA President Jean Todt in 2010. The FIA has since been admitted to SportAccord, The Association of IOC Recognised International Sports Federations (ARSIF), and the World Anti-Doping Agency (WADA).

Freeze frame

ELECTRIC DREAMS

There's nothing new under the sun and that goes particularly for cutting-edge electric vehicle technology, which has been around since the days of great inventor Thomas Edison

In an era when the brochures of car makers regularly trumpet the latest electric-powered eco-triumph, it's easy to forget that the idea of battery-powered vehicles goes back to the very origins of the automobile.

From the electric land speed record-holding 'La Jamais Contente' car of Belgium's Camille Jenatzy to the battery-powered taxis supplied to New York by the Electric Carriage and Wagon Company of Philadelphia, the earliest years of the car were all about electricity.

One of the staunchest advocates of the technology was inventor extraordinaire Thomas Alva Edison. The creator of the phonograph and the first commercially viable electric light bulb was, like modern manufacturers, convinced that improvements in battery life would make electric vehicles the most sensible form of transport in an era when petrol-engined cars were still unreliable.

Ultimately, Edison's experiments were unsuccessful, petrol power seized control of the market and the inventor eventually confessed to close friend Henry Ford in 1909 that electric cars were doomed.

Edison was never convinced by fossil fuels, however, and in 1931, the year of his death, he was still hopeful of a different power source. "I'd put my money on the sun and solar energy," he said. "I hope we don't have to wait until oil and coal run out before we tackle that." We're still waiting.

'I'D PUT MY MONEY ON THE SUN AND SOLAR ENERGY'

THOMAS EDISON

THE MAN: THOMAS EDISON

One of history's great inventors, Edison, born in Milan, Ohio in 1847, was responsible for the creation of the first practical electric light bulb, the phonograph, the development of moving pictures and dozens of other revolutionary technologies. By the end of his life he held over 1,000 US patents. As a pioneer of electric power he was convinced of the potential of batteries and helped develop a number of electric vehicles, one of which was successfully driven from London to Scotland. The car was powered by a 15-volt electric motor and a 30-volt motor and was capable of speeds of up to 25mph, around the average speed of vehicles of the early 20th century. His partnership with Cleveland's Baker Electrics car company saw Edison develop radical nickel-iron batteries, some of which are still operational today.

THE POWER SOURCE: NICKEL-IRON BATTERY

Edison's first batteries for the Baker Electrics vehicles were lead-acid batteries, in 1901, but the inventor soon introduced a replacement – the Nickel-Iron battery.

According to Edison, these units were "far superior to batteries using lead plate and acid" and offered greater durability owing to their ability to survive more frequent charging.

Indeed, such is the long-lasting nature of these batteries that many of the electric vehicles surviving from the early part of the 20th century still feature functioning original power cells, many of which were built by the Edison Storage Battery Company. The technology is still in use outside the automotive field, particularly in solar and wind-power installations where size and weight is not a consideration.

THE CAR: BAKER ELECTRIC

The Baker Electrics company, founded by Walter C Baker in Cleveland, Ohio produced electric-powered cars from 1899 until 1914. Baker's first 'electric carriage' was a two-seater priced at $850, one of which became Edison's first vehicle. By 1906 the company was making upwards of 800 vehicles a year and bragged that its factory was "the largest in the world".

The company's Landolet model of the same year was priced at $4,000, the equivalent today of over $77,000. By this time it has also produced an electric racer with a top speed of 120mph. By 1907 the company had a range of 17 models. Six years later Baker was an established auto maker, insisting it made "genuine automobiles, not electrically driven coaches".

Within a year, however, the company was headed for the history books. A merger with fellow Cleveland auto maker Rauch and Lang in 1914 should have seen it grow stronger but with petrol-power taking hold the market for cars with a range of no more than 100 miles dwindled. Baker ceased production in 1916 and the era of the internal combustion engine was confirmed.

PHOTOGRAPHY: CORBIS

Stats at the back

United Colours of Motor Sport

Drivers from 75 different countries participated in the selection process for the 2013/14 FIA Institute Young Driver Excellence Academy. Each selection event included educational components, so while only 10 drivers could be chosen, all of them gained invaluable knowledge and experience to help them in their careers

BRAZIL

Edson Martins Coelho Junior, 18

CHILE

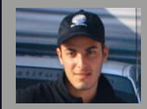
Rodrigo Caballero Alcayaga, 22

COLOMBIA

Juan Diego Piedrahita, 21

COSTA RICA

Mauricio Hernandez, 18

CUBA

Orlando Valderrama, 18

DOMINICAN REP

Michael Tejeda, 18

GUATEMALA

Juan Diego Hernández Leiva, 17

HONDURAS

Tito Alfonso Leoni, 22

JAMAICA

Samantha Summerbell, 17

MEXICO

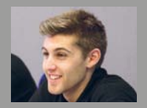
Jorge Cevallos, 19

UNITED STATES

Skylar Robinson, 17

VENEZUELA

Diego Ferreira, 19

AUSTRALIA

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HONG KONG

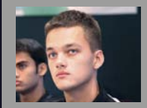
Matthew Solomon, 17

INDIA

Akhil Rabindra, 17

JAPAN

Marie Iwaoka, 20

KAZAKHSTAN

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PHILIPPINES

Medarlo Emilio Rivera, 18

NEW ZEALAND

Mark Gibson, 21

SOUTH KOREA

Ju Won Seo, 19

SRI LANKA

Damith Sanjay Weerasinghe, 17

THAILAND

Pattarapol Vongprai, 17

AUSTRIA

Lucas Auer, 18

BELGIUM

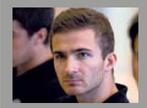
Kevin Demaerschalk, 22

BULGARIA

Daniel Popov, 20

CROATIA

Nikola Belohradski, 19

CZECH REPUBLIC

Patrik Hajek, 22

DENMARK

Michelle Gatting Braendstrup, 19

ESTONIA

Rasmus Uustulnd, 17

FRANCE

Anthoine Hubert, 16

GERMANY*

Marvin Kirchhoefer, 19

HUNGARY

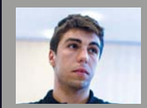
Benedek Major, 17

IRELAND

Kevin O'Hara, 23

ISRAEL

Roy Nissany, 18

ITALY

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MALTA

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NETHERLANDS

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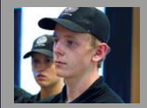
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POLAND

Bartlomej Mirecki, 17

ROMANIA

Ioan Badiu, 21

SERBIA

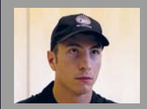
Nikola Milijkovic, 18

SLOVAKIA

Matej Homola, 19

SLOVENIA

Klemen Popit, 17

SPAIN

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SWEDEN

Erik Johansson, 16

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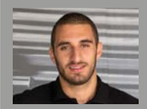
Yannick Amberg-Mettler, 23

UNITED KINGDOM

Jake Dennis, 18

BAHRAIN

Abdulla Al Thawadi, 17

CYPRUS

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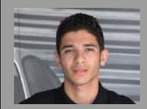
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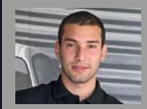
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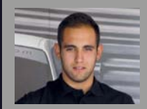
IRAN

Mohammad Reza Hematian, 20

JORDAN

Izz Bustami, 19

KUWAIT

Zaid Ashkanani, 19

MOROCCO

Aymen Raji, 18

OMAN

Mannan Al Rawahi, 19

SAUDI ARABIA

Abdullah Bamogaddam, 19

SUDAN

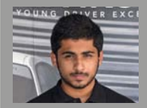
Khalid Hassan El Sayd, 23

SYRIA

Yazan Hamadeh, 20

TURKEY

Gun Tasdelen, 19

UAE

Mansour Al Helei, 21

BURUNDI

Amaury Giesen, 19

KENYA

Tejas Hirani, 15

MADAGASCAR

Olivier Ramiandrisoa, 22

MOZAMBIQUE

Cristian Bouche, 22

NAMIBIA

Mark Sternagel, 17

REUNION

Vincent Burgot, 22

RWANDA

Rutabingwa Fernand, 23

SOUTH AFRICA

Kelvin Van der Linde, 17

TANZANIA

Rajpal Singh Dhani, 24

UGANDA

Bakunda Unissan, 23

ZAMBIA

Muna Bhandair, 18

ZIMBABWE

Cole Bond, 17

WILD CARD**

Henk Lategan, 19

AMERICAS
ASIA-PACIFIC
EUROPE
MIDDLE EAST & MEDITERRANEAN
SUB-SAHARAN AFRICA
WILDCARD
EVENT WINNER

* Took part in the Middle East event as competition commitments prevented attendance in Europe

** Nominated as second driver by Motorsport South Africa so did not take part in regional selection event but chosen as top rally driver wild card

Rallying Return

BACK AT THE TOP

Hyundai is returning to the World Rally Championship next season with rising star Thierry Neuville behind the wheel and veteran engineer Michel Nandan leading the way in his first team principal role. Nandan, who designed the world championship-winning Peugeot 206, talks to AUTO about Hyundai's reasons for returning and their plans to be a long-term fixture in the future of the sport

Q Why has Hyundai decided to return to the World Rally Championship?
A When Hyundai announced that they were leaving the WRC in 2003, they told the FIA that they would return and this is something they have always intended to do. They were deciding which format and which way they could do it, and a decision was made to come back as a proper manufacturer team, a works team. This has taken a bit of time. It is a completely different involvement from before – a full commitment from Hyundai. And it is now connected to the updated i20 car, which was not the case in the past.

Q What has changed now for you to want to come back to the championship?
A Well, two things. Firstly, Hyundai are coming to the market with different types of cars so we want to show the engineering capability of our brand. Secondly, we are very keen to have a connection to motor sport so we can generate equipment that can be used for high performance cars or sports cars in the future.

Q How do you see the championship developing in the near future?
A Well, it depends a lot on what will be done to promote the championship. In the last six years the championship has been missing manufacturers. One of the big things will be to have manufacturers involved in the championship, but what the manufacturers are waiting for is a good way to use the championship for promotion and to get good feedback from those promotions. For me, things are definitely going in the right direction. The way the FIA have reorganised it last year and this year, we are really hoping for a lot from the new format.

Q Which round of the WRC are you most looking forward to and why?
A I would say I am most looking forward to the first one we will do next year. I think this is normal because it is the first one with the actual car and also the first rally we will do one year after getting the go-ahead. It is an important challenge and at the moment we are only focused on that.

Q Is the signing of Thierry Neuville a statement that you intend to be a front-runner from that very first round?
A Yes, of course, and that is why we chose him. As he proved this year, especially in the second half of the season, he really is a driver that can lead a rally and compete strongly with the best drivers.

Q You've worked in WRC since the 1980s. Do you think it can return to its former glory?
A Well, we have a completely different situation today, not just from an economic perspective, but also a technical one. Of course it will be a great competition, but it will be difficult to match what we had years ago with six or seven manufacturers competing, and to get back to that situation is still a long way off.

Q Do you think you will be challenging for the championship at the end of the season?
A I think it is a bit early. Next year for us will be a learning curve, a chance to train and develop the car, because we are a bit short at the moment. I think there is still a lot to do, and the championship is a long-term commitment. We are really looking to preparing for the 2015 season.

Q Do you think Hyundai will still be in the championship in five years' time?
A I don't think there is a time limit, and we will find a benefit from that. For sure, there will be competition, there could be some other championships, but as far as it can be useful for the company, yes, this involvement is a long-term commitment.

1860 Edouard Heuer founded his workshop in the Swiss Jura.
1916 First mechanical stopwatch accurate to 1/100th of a second.
1963 Jack Heuer designs the Carrera Series.
2013 New Carrera Automatic Chronograph with Calibre 1887 in-house movement.

TAGHeuer
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