dallara MAGAZINE
06/2010
PUBLISHED BY DALLARA
THE PURSUIT OF EXCELLENCE

F.3

JOS CLAES EXPLAINS WHY THE HISTORIC TRAINING CATEGORY IS STILL A VALID ROUTE TO F1

GP2

ALL THE TECHNICAL UPDATES FOR THE NEXT "MINI F1", DESIGNED IN VARANO, ITALY, TO PUT ON A SHOW AND TO CUT COSTS THROUGH UPGRADED CHASSIS

INDYCAR

DALLARA WILL STILL BE THE CAR FOR THE PRESTIGIOUS US CHAMPIONSHIP FOR THE YEARS 2012-2015. HERE ARE THE SECRETS BEHIND THE PROJECT AND THE REASONS FOR DALLARA'S AMERICAN COMMITMENT

SWEET HOME AMERICA

Dallara has once again beaten the opposition by winning the competition to provide the chassis to the IRL until 2015. The fourth generation marks an important step, with a new factory base in the States and the launching of yet another sporting and entrepreneurial challenge. The new car is to be revealed at the 2011 Indy 500

It is official; Dallara will provide the cars to the American competition, IndyCar, between 2012 and 2015. The contract was signed during a ceremony at the Museum of Art in Indianapolis, in front of the Governor of Indiana and other state officials. It is the fourth generation of the Dallara IndyCar, following those of 1997, 2000 and 2003. Overall it has been very satisfying for the Engineer, Giampaolo Dallara: "The ICONIC Advisory Committee's decision to make Dallara their chassis provider for the next generation of IndyCar fills me with pride. I will make a strong commitment to make a product that fulfills the high expectations and that strengthens our image as a constructor of fast and safe cars". The chassis will be made by Dallara and when drawing up the safety standards, the experience accumulated over the past few years and the regulations of other championships will be considered. The car will be unveiled at the 500 Miles of Indianapolis in 2011, for the centenary race of the 500 Miles and will then be delivered to all the interested teams by December 2011. The new regulations will give them the opportunity to personalize the car and bodywork at a predefined limited cost, with the name of the teams, constructors, sponsors and engineers. It will mean significant reductions in price, weight and fuel consumption, in line with concerns over efficiency that are very relevant to the automobile industry. Dallara will also establish its own base opposite the historic Speedway circuit. Here the next IndyCar models will be designed and made; commercial and technical operations and the development of a new simulator at the frontline of technology will all take place in the constructor from Parma's new setting.

"INNOVATING OUR WAY OUT OF THE CRISIS"

EVERYONE'S COMMITMENT TO DALLARA IN INDIANAPOLIS HAS BEEN CALLED A "KEYSTONE" IN THE REGION'S DEVELOPMENT BY THE GOVERNOR OF INDIANA. ANDREA PONTREMOLI, ENGINEER AND CEO OF THE ITALIAN BUSINESS, EXPLAINS THE STAGES AND CHARACTERISTICS OF THIS EXCITING CHALLENGE THAT GOES BEYOND THE WORLD OF RACING

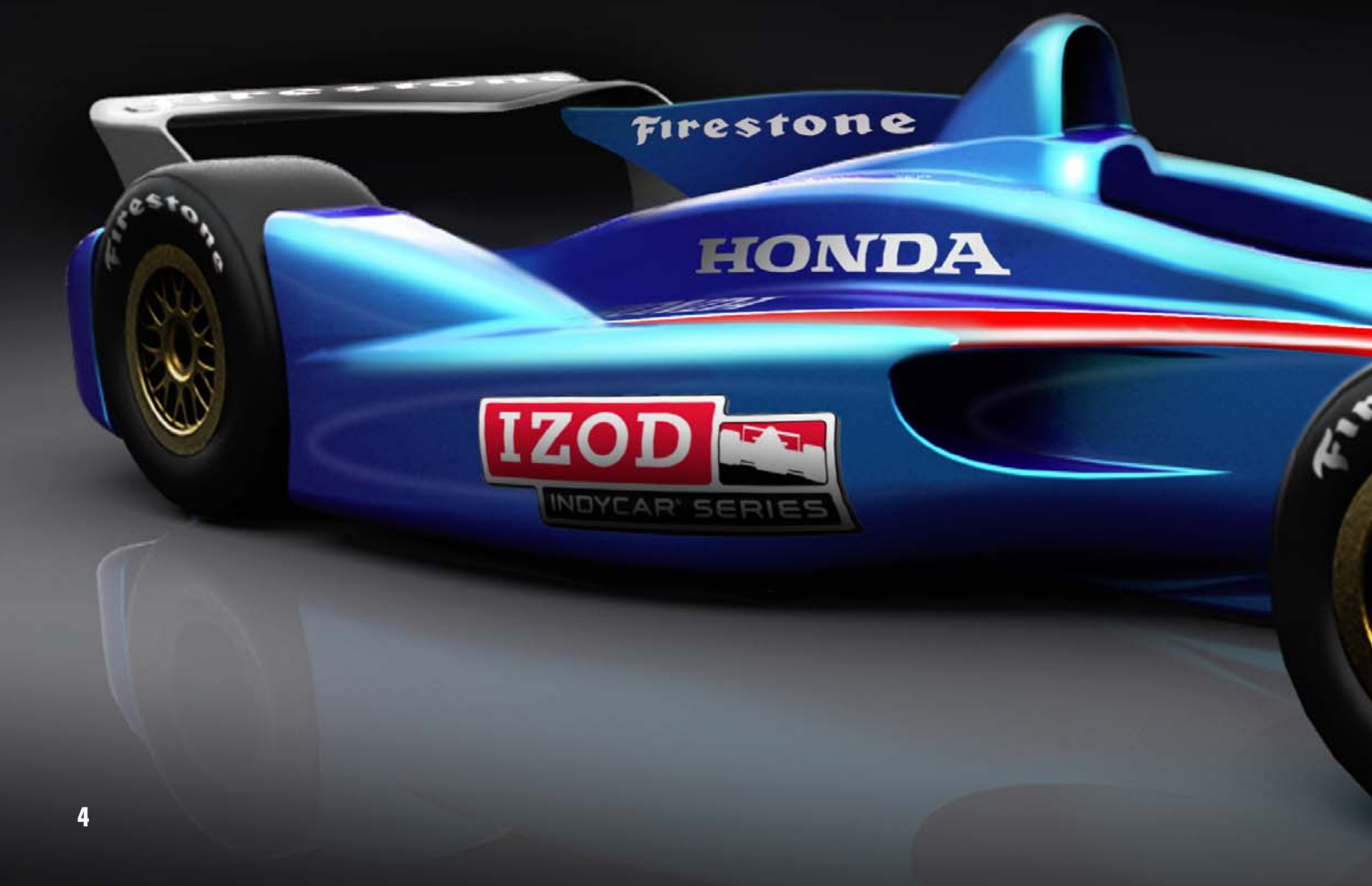
What does it mean to have a new agreement between Dallara and IndyCar?

"It is a very important agreement for Dallara and, I think, for IndyCar, too. An innovative concept on how to combine safety and performance has been developed; low costs in a competitive setting have been achieved through various possible "aero-packages". Each season we will see up to 50 different cars racing both on the oval and road circuits at a predefined maximum cost. It is proof that innovative ideas come out of a crisis, now we must give the practical demonstration of how this can be done".

It is not only matter of sport, since the American commitment to Dallara includes the creation of a technology centre in America. How did you come to an agreement with the Indianapolis authorities and the State of Indiana?

"We began discussions with the people in charge of the State and the city six months ago and in the last fifteen days we finalized all the agreements. Our aim is clear, to construct a factory, but not only that, we want to create a technology centre where we can bring our engineering business both for racing consultancy to the other constructors and for the manufacturers of supercars, replicating exactly the set up Dallara has in Italy. The Governor of the State of Indiana has called us a "keystone" in the development of the area around the Speedway".

What are the stages in this wide-ranging project? How is the Dallara presence divided up around the Speedway? How



much labour is involved, and how much comes from Italy?
"The stages are a bit constricted by the time dictated by the contract which says that: by December 2011 we will have delivered the first fully operational cars; by October 2011 we will have tested the first prototype; and by September at the latest the building where the cars are constructed will have to be ready. Therefore we only have 12 months to prepare everything, a real challenge! The workforce has not yet been finalized as it depends on the amount of business that is done outside Dallara, some people from Italy will definitely be assigned positions of responsibility, we want to maintain the Dallara culture, but inevitably a large part will be taken on at Indianapolis".

Does this step mean that in the future Dallara will have a bigger commitment to American motor-racing, with new categories and new headquarters?
"Dallara USA will have to expand, also in its role of advising other constructors".

Will you take into account the public aspect, the spectators that come to the races?
"Our technology centre will definitely be open to all our suppliers and the university. This is to create engineers of the future, but another aspect we are considering is opening the centre to the fans. The fans would be able to come and see how the cars are constructed, with engineers that would explain the technical elements, they could try the car in the simulator, first trying the two-seater and then the single-seater. There is going to be a large meeting room and even a restaurant. People will go away from Indianapolis with there hearts and minds fulfilled".

Can we consider Dallara at the forefront of Italian industry abroad in the post-crisis scenario?
"I don't know about that and I think it would be presumptuous for me to say. I will say, however, that we looking at the crisis as an opportunity. The only way to predict the future is to try and create it, and we are trying to do just that".

INDYCAR

A SIMPLE SOLUTION TO

ANDREA TOSO, INDYCAR HEAD OF RESEARCH AND DEVELOPMENT FOR DALLARA, REVEALS THE CHARACTERISTICS, PHILOSOPHY AND ADVANTAGES OF NEW CAR, BORN OUT OF "IMPOSSIBLE" DEMANDS, THAT WILL BE DELIVERED TO THE TEAMS IN DECEMBER

How would you describe the new car in comparison to the current one?

"As Gil de Ferran, one of the ICONIC Advisory Committee, said describing the decision process that led to Dallara being chosen:"It is a simple solution to a complex problem". Around two months ago, when we received the specifications for putting together our proposal, we thought that it would be impossible: reducing the costs of the teams by 45%, keeping the same performance with a reduction of 80 hp, reducing the weight by around 90 kg, allowing adequate space for the sponsors, accepting the competition in aerodynamics and finally, constructing the cars in the USA. It seemed impossible to come up with a plan to make the business profitable and at the same time maintaining our reputation for providing quality and affordable products. We accepted the challenge that was laid down because we knew there must be a solution".

Further increases to the already high safety levels were set for new car. How do you have achieved these improvements?

"Safety is a never-ending process that requires care and attention. The aims of that process are to improve on current standards every time that experience demonstrates the need.
Specifically in the case of IndyCar, standards were raised in 2003 and further updated in 2006.
Mike Conway's recent accident at Indianapolis is an example that showed something can be improved, despite the successful outcome. In this particular case they are going to introduce tests on the bottom of the car, an innovative concept even with respect to the FIA.
Another example is the addition of 75mm of shock absorbers both behind and underneath the driver.
Another example of innovation in safety terms is the concept of reducing the risk of wheel contact between the cars. The proposal is that the bodywork of the car will protect the front wheels from contact with the back wheels of another car, and will be as wide as the track to prevent lateral contact between the cars' wheels as they race side by side, centimeters apart.
Criteria for aerodynamic safety will also be introduced based on the criteria of stability both in terms of the length and contact with debris and in terms of width and loss of control and the resultant elevated yaw angles...".

To what extent can you absorb these costs?

"Challenges are rarely won on a single front. I can remember the most important aspects, reducing the variety of the pieces. A single upright on the left and right for both the oval and road circuits for the front wheels, and one for the back wheels, so that there are only

A COMPLEX PROBLEM

two on the price list, compared with the current eight; a single nose cone for oval and road circuits instead of the two existing and a single suspension set-up, that can be used with both types of car…

Another aspect is designing the components that have the long life. In this way, the teams operating costs are reduced as the year goes on.

Then there is the application of the "design-to-cost" and "design-to-maintenance" concepts: the pieces must be designed to be constructed at the minimum price, with suitable materials and procedures, to reduce both the cost and also maintenance time. We have also to remember that the IndyCar calendar is split between oval and road races with long distances to travel, from California to Texas, from Indiana to New Hampshire".

What type of performance are you expecting from the new car?

"The aim for Indianapolis is to maintain a similar performance, around 225 mph on the circuit. But the challenge is to get the same performance out of an engine that has 550 – 570 hp, instead of the 620 -630 hp current engine. Therefore, it is necessary to have the same level of downforce but reduce the aerodynamic resistance by around 10 – 15%. That means it is essential to go back to the vehicle concept to extract better aerodynamic efficiency, bearing in mind it must remain open cockpit and open wheel, a minor improvement will not be enough. For the road circuits the aim is to improve performance by about 2%. It might seem a meagre amount, but take into account the average circuit has a lap time of about 100 seconds (1 minute 40 seconds), and so 2% represents 2 seconds. Because of the changing context, the current car is the result of competition between Dallara and Panoz-Gforce, apart from the aerodynamics, the new car will be a single brand - Dallara".

Aerodynamics has been another very important factor, can you explain how you achieved the results and how the teams are able to make alterations to the kit.

"We had to be creative and seize the new opportunities created by safety needs of the Indy Racing League (to reduce the risk of wheel contact and increase the stability of the pitch and the yaw in case the vehicle loses control) to reduce the resistance, for example to increase the flow of air over the back wheels that at the same time reduce aerodynamic resistance and the risk of wheel contact. Each constraint forces people to improve. The teams will be able to intervene in the design process, construction, sale of components, bodywork, front and back

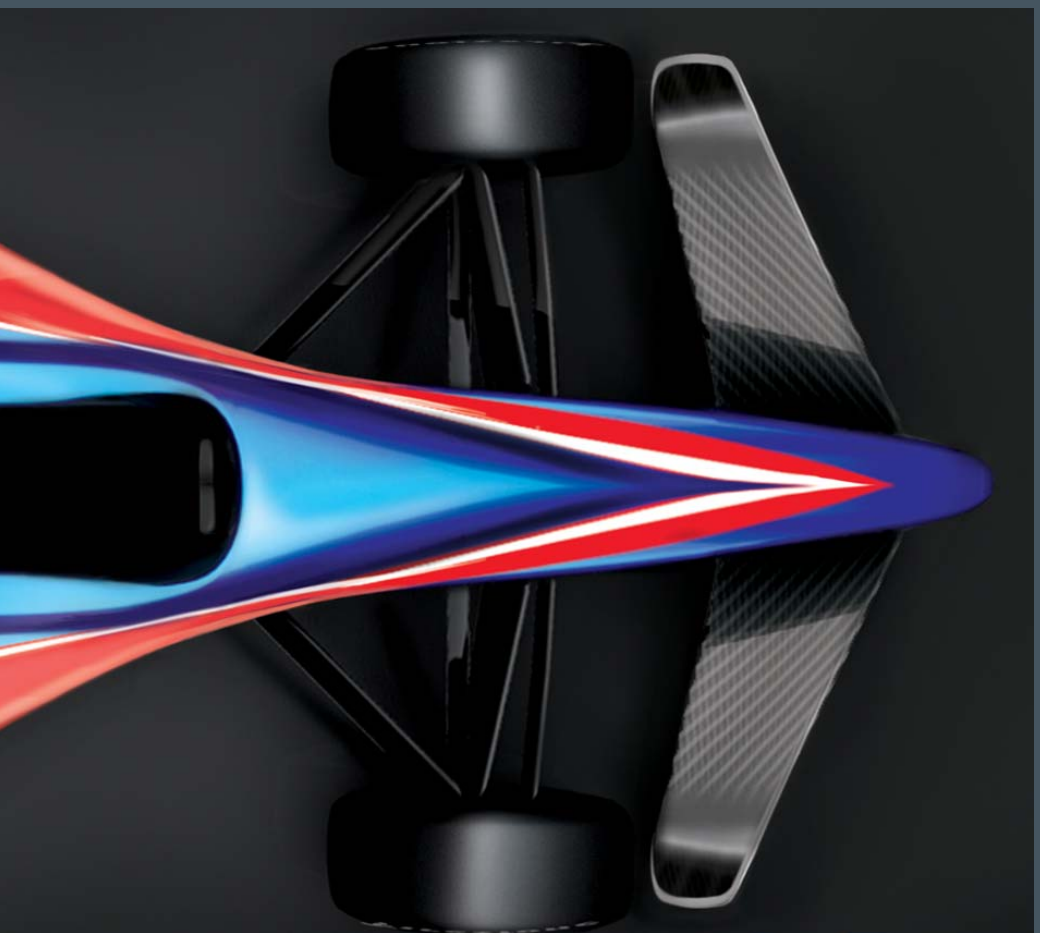
wings, with a fixed maximum price, and on the condition that it is sold to all the other teams. Obviously Dallara will also be able to produce its own kit, which will be in direct competition. The kit will be developed not only for the teams (Penske, Ganassi, Lotus) but in particular for other companies, for example mainstream car companies such as Ford, GM, Chrysler, the sponsors being Coca Cola or MacDonalds, and the provider being Honda, Firestone, Izod….. This opens up infinite opportunities and expands the business".

Many of the drivers expressed their enthusiasm after the announcement. How did you get the suggestions from the teams and drivers for developing the new project?

"The current car was conceived in 2002 to race exclusively on the oval circuits in the 2003, 2004 and 2005 championships. In 2005 we had already begun to consider the possibility of a new car and then came the chance to race on the road circuits. Since then we have conducted many interviews with drivers, mechanics, engineers and owners and have examined the results. I would say that the project we have presented is definitely the result of our ability to listen the conscious and unconscious needs of our clients, adding the opinions of both championship organizers and the fans that follow at the circuit and also on the television or internet".

Was a more aggressive look intentional in the design process?

"The fans' input is important, at the end of the day are the fans that contribute, be it directly by buying tickets or indirectly by buying videogames, merchandising, TV subscriptions, etc. To ignore them would be a mistake. We can all become enthusiastic about a novelty item, but this is only one factor in the decision process. Then comes the fear of exceeding in the innovation stakes, in other words the risk of getting ahead of the times. The design must allow adequate space for sponsors. It is worth noting that the current look was designed in 2002, the date of the general plan for this IndyCar".



Is it possible to compare the new IndyCar to F1?

"I wouldn't say so. In IndyCar there is a maximum price for the car and a maximum price for the kit, all of which is transparent to everyone as there is a list of parts. In IndyCar, as with every American sporting event, safety and entertainment take precedence over pure performance. In addition the same car must be adapted, with minimum variation to the structure which is planned for in the design phase, both for the road and oval circuits. This means that the suspension and fuel tank must be designed for the continuous acceleration associated with the oval circuits as well as being ready for the short bursts of acceleration and breaking typical of the road circuits".

When will the car production begin in America?

"The car will be constructed in the USA; some components will perhaps be constructed in Italy, if the costs are lower. Delivery of the new cars is planned for December 2011, so that there will be enough time for the teams to get to know the new product".

Alessandro Santini

MADE TO EXCITE

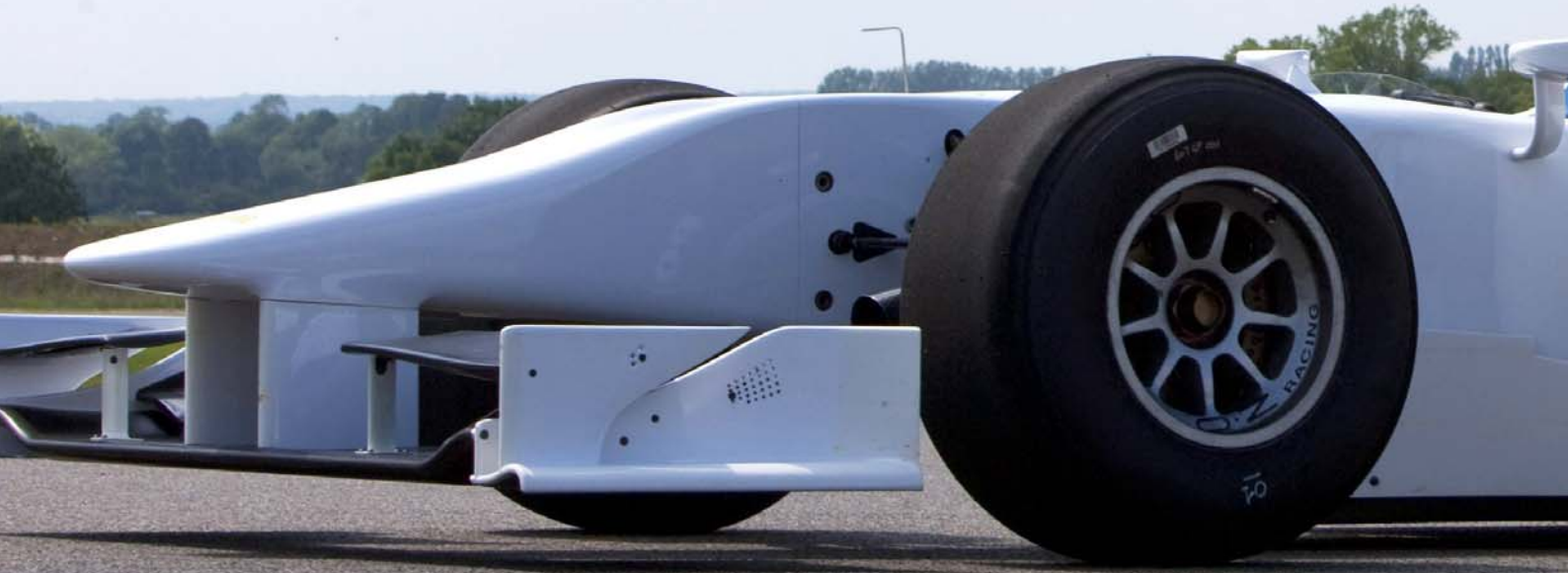
GP2 really looks a lot like F1, is that satisfying?
"GP2 has always aimed to get as close as possible to the next level, F1. Drivers enter GP2 because they dream of racing in F1. Bruno Michel's idea is to form a progression, GP3, GP2, F1 with only the most talented drivers advancing to the next series. The trend is therefore to get as close as possible to the car of the biggest series, even in the appearance".

And in safety...
"Exactly, the new GP2 will be the only other car to follow the F1 safety regulations for 2010".

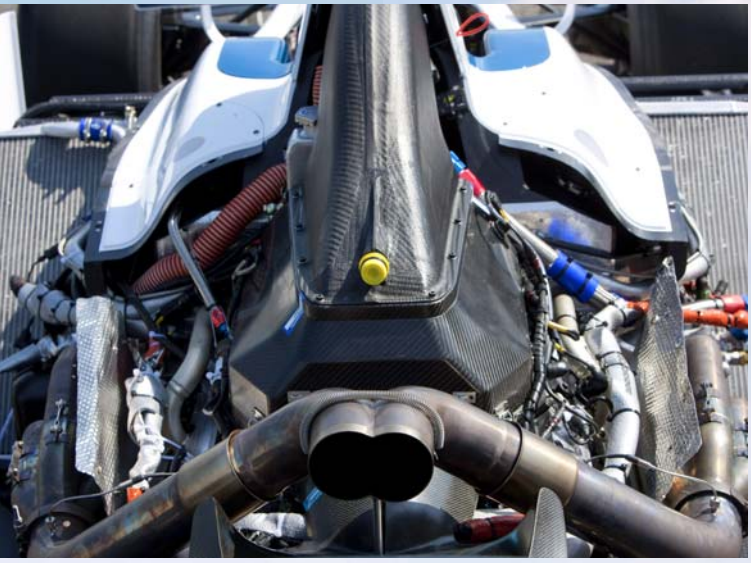
Beyond the essential safety factor, what were your aims when designing the new car?
"The hope is that the races in the coming GP2 season are going to be even more entertaining. We have tried to design a car that is less sensitive to the turbulent wakes, therefore making overtaking easier. We've carried out so much CFD work, in the wind tunnel, in the first race we will see if we have won the bet".

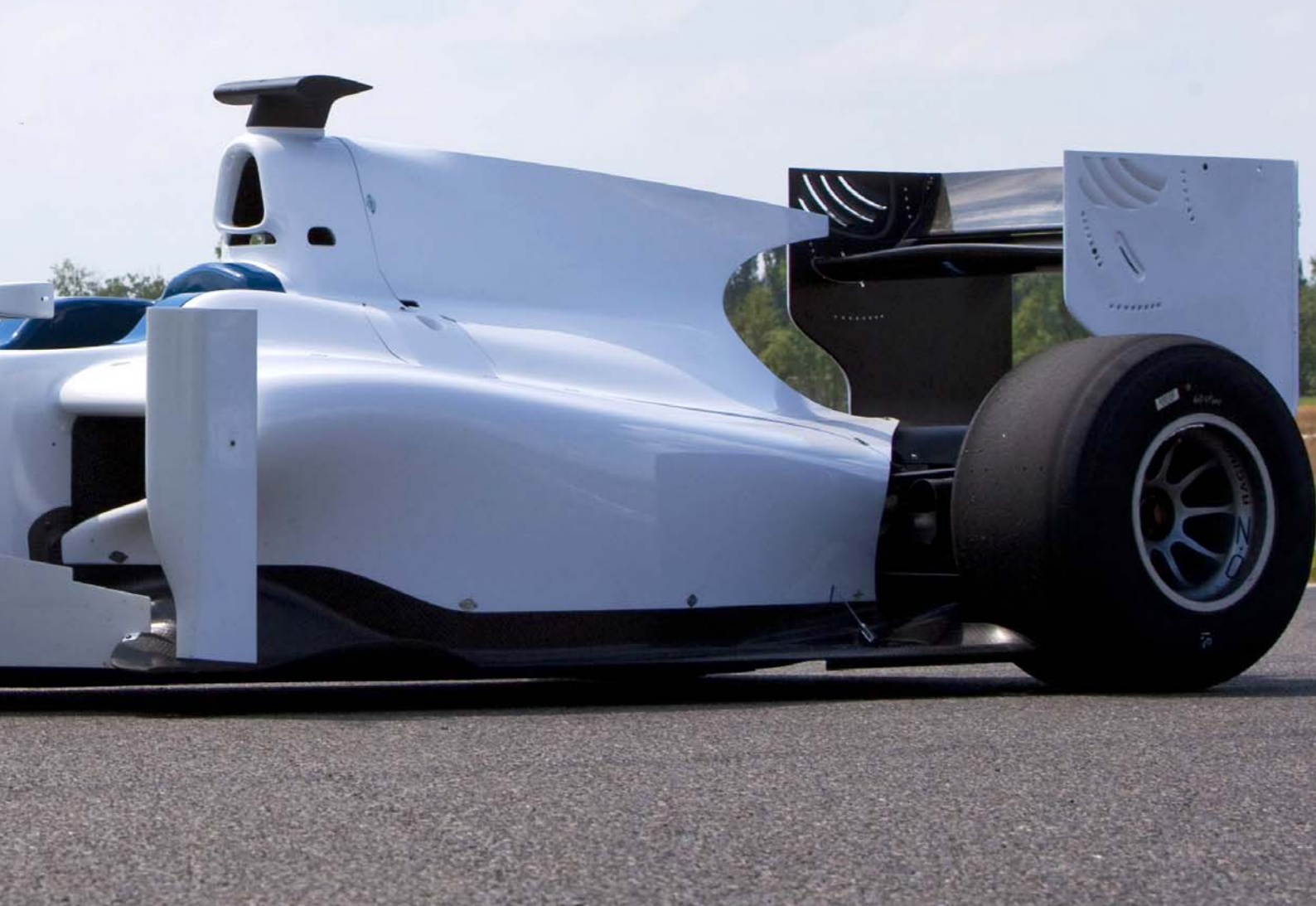
Is the new car more of an evolution or more a revolution?
"A little bit of both. From the car management and economic point of view it is an evolution. Decisions have been made to reduce the overall costs of the teams. For example, it was decided not to create a new body. In this way, teams will be able to sell their old cars and, if they want, send us their old chassis for an upgrade, that is if they are in good condition. This is the evolution of the car. It is only if they want to have a reserve chassis, obviously it is possible to do the whole season with only two cars".

How long does it take to do this?
"Around a week, but if it is urgent it



The new GP2 single-seater has been constructed following the aerodynamic forms of the F1 car whilst keeping in mind the main concept that the category should act as a school from which the greatest talents emerge. Together with the Engineer Luca Pignacca we uncover all the secrets of Dallara's new car





can also be done in three days. Obviously there are cars that after three years "in battle", have suffered too much damage and cannot be reused. This upgrade can turn out to be very useful, maybe for a team that has only had the car for a year and do not have any intentions to sell it, they can change the body so that the car will be able to race. Not even the motor, with the exception of a few modifications, is changed; nor the cooling system, so the teams can still use all the pieces that they already have".

Let's talk about the "revolution"?
"The aerodynamics have changed completely, the forms are different. The gearbox is no longer Mecachrome, but Hewland. They are constructed in a similar way, in that the suspension attachments stay the same. However, the new aerodynamics have influenced the position of the exhaust which has been raised, before it was further down and longer. Meanwhile, the engine's horsepower has been increased".

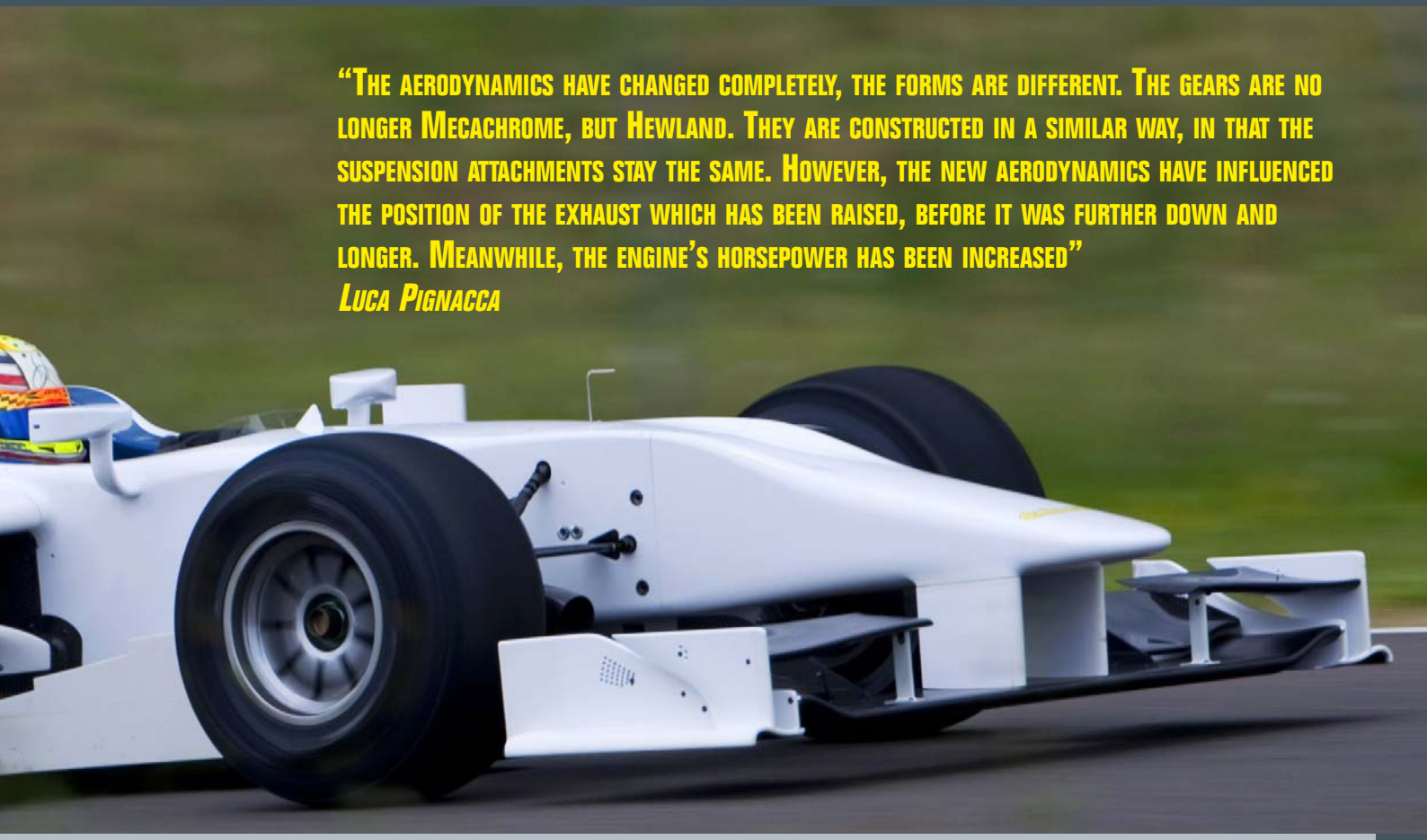
What were the reasons behind this decision?
"We had to find more downforce. GP2 follows F1's rules, and with a much smaller rear wing. So, if we wanted to have a faster car than last year we would have to look elsewhere to find the downforce. That is how we ended up with the more aggressive looking rear, and change in position for the gears".

Has the change in tires from Bridgestone to Pirelli influenced you in any way?
"No, because it was clear a long time ago that we would not use Bridgestone and we only found out at the last minute that Pirelli would replace them. Let's say that Pirelli will have to adapt to the car instead of the other way round".

Are you going to all the development tests?
"Antonio Montanari is going to be there, he is the head of GP2 program".

When will the cars be delivered?
"In mid October we will send the first 13 cars, and around the 8th and 9th November the other 13. About the middle of November there is going to be a collective test at Le Castellet, then the cars will go out on the track for the first race of the Asia Series 2011".

Dallara has just won the contract for the next five years of the IRL. Are there any exchanges of knowledge between the various Dallara enterprises?
"Yes, we try to have exchanges between the various projects, not only with similar cars, but also with very different cars. One of Dallara's strengths is its experience obtained in different types of car. It often occurs that if something works well in a Sport or GT car, then it is transferred to a Formula car or vice versa. As always, the experience we gain in other cars will come to benefit the IRL, which in turn will have its own demands. GP2 is not excluded from this; it too has some solutions that have links with IRL. For example, the quick attachments for the nose cone in GP2 are the same as in Indy, whilst the new pedals in the IRL will one day probably be used in GP2.



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Luca Pignacca

The IRL however, is still in its early stages. Of course there are overlaps that will unify some of the components for all our cars".

In the planning of the single-seaters in Europe and America, are they looking toward a common ground or are they still very separate concepts?
"It is difficult to make generalizations, there are no clear separations. In Europe it is definitely F1 that leads the way, especially in aerodynamics. The Americans get little or no influence from this being more concerned with the cost and the show. In the USA the technology must always serve the show factor, and is never an end in itself. A bit like in GP2, where to help the show they sometimes make compromises that would be unthinkable in F1. An F1 car should be as easy as possible, so that the driver feels safe taking it to the limit. On the other hand, in GP2 the aim is to have a car that at its limits is more difficult to drive than an F1 car. If in F1 the aim is to have a car that goes as quickly as possible, in GP2 it is to put on a show and to highlight the ability of the driver. The goal is not pure performance but entertaining the public and rewarding the quality of the driver".

Alessandro Santini

THE SCHOOL FOR

The training category continues to produce talent that can deal with the top flight. With Jos Claes we look at Dallara's technical support in this exciting world

F.3 Masters set up the traditional match between F.3 Euro Series and British F.3 drivers, all on Dallara cars. Which differencies you can point out between the two campionships?

"Basically these two championships have far more in common than in what they differ. Both use the same cars and engines and both attract drivers from all over the world. One sounds more international than the other but also the UK series do several races abroad. The tyre make is different, which gives a bonus to the Euro Series teams and drivers since they use a slightly different tyre but one from the same South Korean company, Kumho. The UK series typically runs a B-class series in the main series. This allows one generation old F3 cars to run together with the Championship cars. Only the Euro Series run current generation cars. The UK series is sanctioned by the MSA, the British Motorsport Association, while

R F1

the Euro Series are sanctioned by both the FFSA and DMSB, respectively the governing bodies of France and Germany.

Statistically the Euro Series have, in its 8 years of existence, delivered an impressive amount of drivers to F1 compared the UK series, something that was the other way round until a few years ago. But still from 24 drivers on the grid today 8 came through the UK series while 11 come from the Euro series and finally another two from other F3 series".

Euro Series F.3 faced a dramatic loss of drivers, nevertheless the global market for F.3, from Brasil to Japan, is still good. How do you analize the full picture?

"The arrival of the new and successful GP3 series is often called the main reason why so many drivers got lost in the Euro Series 2010. This is partly correct but I doubt it tells the full picture. High costs and various management related complications made some team owners have trouble finding drivers with enough budget to run the Euro Series 2010. The very intense technical fight between Mercedes and Volkswagen also scared a few drivers of picking the wrong car-engine-team combination.

The main reason for the down-turn is without doubt the financial and economic crisis the world goes through. Why it affected some series more than others is a long and complex discussion.

Globally the Formula remains strong and the total amount of cars running is still similar compared to a few years ago, before the financial crisis. Appropriate measurements taken by some series and by the FIA are supposed to secure the future of the Formula.

Apart from the lower Formula Ford and Renault it still is the first professional Formula known in Europe, the Americas, Oceania and Asia.".

Dallara F.3 cars can run with Mugen, Toyota, Mercedes, Volkswagen as well with Fiat engines, without any kind of problem. Same story with the tyres (Kumho, Avon, Yokohama). Which is the key in order to stay allways at the top of the performances?

"There are three main reasons why Dallara F3 cars managed to stay ahead of the competition since 1993.

1) Proper development and progress were possible because the company gave the program the appropriate amount of resources. Common sense was used at all times and we choose for evolutions rather than revolutions.

2) The quality of the car very much satisfied most of our customers throughout this period. Customers are happy with the car and service we provide them with and are reluctant to change for another.

3) Last but not least, we carefully listen to our customer's comments and wishes. These often have helped to direct the development.

The fact that the same basic car goes well with different engines is because typical F3 engines simply are very similar between them. Regarding tyres it is very much a matter of having enough large adjustment range build in suspension, weight distribution and aerodynamic balance".

F.3 in Italy actually boomed. Can you tell us the main reason for this unespected growth?

"The Ferrari F1 test is a major promoter for the series in Italy. After many years the series struggled but resisted it now attracts again many foreign drivers as well as the best out of Italian karting and the lower Formulas. A lot of teams owners and managers stepped in and searched the drivers because they saw the potential to make their business profitable in F3 again.

No doubt that the one make low cost Fiat FPT engine helped to attract drivers since they can do a high amount of testing at a very reasonable cost.

Why F.3 is so perfect as "driving

school", especially from a technical point of view, for all the young drivers?

"The Formula is a perfect school not only for drivers but also for mechanics and engineers. There is, compared to the single make Formulas, a lot more technical freedom. Both the driver and engineer are involved in many of the decisions to be made in order to find the best set-up for the qualifying and the race, going from the correct gear ratio's to the mechanical and aerodynamic set-up details.

Specifically for the driver we can say that the down-force/weight ratio is extremely competitive and since the weight is very low the car is a very swift, nimble and precise vehicle. These features are very much appreciated by drivers that have good memories of their time in karting. The driving precision and therefore concentration requested is from a very high level and therefore prepares them perfectly for GP2 and F1".

The Dallara competitor in the Italian and French championship is Mygale. Which is your strategy in fighting the french constructor?

"The secret is no secret, make the best car and keep your best teams happy to stay with Dallara.

The best car results from a proper aero program in the wind tunnel, stiff chassis and suspension installation and a seat position for the driver that enables him to see, sit and operate pedals, steering wheel and gearshift in the best possible conditions".

Can you talk about the news expected for the 2011 season?

"The year ahead of us will be little different from 2010. The new car that we have started to design will hit the track in 2012. We hope to win the Italian F3 championship this and next year since we face the most competition here.

The most important question to tackle is how to make the Euro Series to survive this and next year. Talks are going on between the DMSB, FFSA and FIA.

The FIA would like to see at least one or two more international F3 races to happen from 2011. Zandvoort and Macau could be joined by races in Pau or Spa and Korea or Japan".

Alessandro Santini

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THE PURSUIT OF EXCELLENCE

- Consultancies, design and production of racing cars and high performance road cars.
- Aerodynamics: wind tunnel and computational fluid dynamics (CFD).
- Research & development: vehicle dynamics and driving simulator.

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