CENTE MAGAZINE





WS RENAULT

EMMANUEL ESNAULT, MANAGER OF THE CATEGORY'S FRENCH HEADQUARTERS, TELLS US ABOUT THE BIRTH OF THE PARTNERSHIP WITH DALLARA, WHICH CELEBRATES SIX SUCCESSFUL YEARS IN 2010



An Indycar is a strange animal. When it stops in the pits it looks wrong, all twisted and asymmetrical, in certain ways it looks absurd. The left camber is positive, the rear left wheel is smaller in diameter than the right. The steering wheel is bent, the bottom of the car is tilted, with one side lower that the other and the two front wings are at different angles. It looks like a walking albatross, clumsy and unwieldy; but at full speed, when it goes round a bend without hesitation, it becomes an elegant and majestic cheetah in pursuit of prey.

Building a competitive car for the American oval circuits in 1996 in Italy, was a very difficult challenge, because of the language barrier, measurement units, a highly specialist technical vocabulary and for the clear mistrust that the Americans show when they use a foreign product. Today however, after almost fifteen years, Dallara has without any doubt become synonymous with safety and performance. For drivers, engineers and the championship organisers it is impossible to imagine a future without Dallara, for its experience, reliability, service

and the ability to react to unexpected situations when using the cars on new circuits.

Dallara is now considered by the entire community of Indianapolis as brave and courageous; known for taking on technical challenges; famed for knowing how to say no when it is necessary; and that knows how to start anything, but won't do anything at any cost.

Andrea Toso, Head of R&D and US Racing Business Leader

With audacity one can undertake anything, but not do everything. Napoleone Bonaparte IRACK



A MIXTURE OF SPECTACLE AND EMOTION

Alessandro Santini

"Ladies and gentlemen, start your engines!" This is the ritual command that is given at the start of one of the most important and exciting events in the history of racing, the Indianapolis 500 mile race. First said by Wilbur Shaw, president of the Speedway between 1946 and 1954, the legendary circuit that has hosted the competition since 1911, the phrase is still used every year by Mari Hulman George, current owner of the oval together with all her

family. The race is unparalleled by any other racing competition, for its excitement, the emotions it evokes and in particular for the cultural values that it reaffirms.

The date of the race coincides every year with Memorial Day, the day in which Americans remember and celebrate all those they lost in war, at home and abroad, regardless of race, social status, or religious beliefs. The heroes, whose bravery was responsible for the success of











The pride to be part of Indy's history

Fifteen years ago we did not think we could win at Indianapolis. It was such a distant and improbable possibility that it did not even feature in our dreams. Then, through a good rapport with Andy Evans, who raced in Indycar and in the Ferrari SP333 that we designed, came the meeting with the owner of the Indianapolis circuit Tony George, and the proposal to construct a new car for Formula Indy. Since then, we have strengthened our position in the most important racing event in America, perhaps even the world, and our string of victories has become our crowning achievement. However, the "500 Miles" is not only a competition, it is an event for young people.

the circuit for two days, mixing their passion for cars with their love of life, music and even beer. It is an opportunity to escape for so many families that come to Indianapolis from all over the States to camp on the lawns around the track. There is a two hour parade of the main universities' bands to celebrate the event but also to acknowledge the national spirit and remember those who died at war. Indianapolis will allways remind me of the emotion that Caterina and I felt helping with that parade and the pride we had for the winner on the finishing line, on Monday morning as tradition dictates. Unforgettable memories that always leave with me emotion and nostalgia.

> Gian Paolo Dallara, President of Dallara Auto





the American "melting pot", and who accompany the legends of the track in a mixture that almost has a religious aspect.

Thanks to its one hundred year history the competition is at the same level as the NBA and NCAA basketball finals and the Superbowl; with enviable organization and festival atmosphere, around 400,000 people mainly from the Midwest, descend upon the speedway with many more following on television at home.

The pre-race build up is an event in itself: from the impressive military parades each with its own band and anthem, to the veterans to whom the drivers honour (they start the race from the same spot a couple of hours later) plus all the civil and religious leaders, the bishop, the Mayor of Indianapolis and the

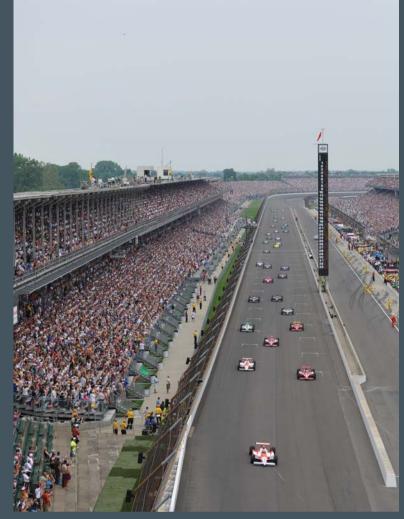
Governor of Indiana, the senators and heavily decorated veterans, actors and directors (this year Jack Nicholson will be the guest of honour), rappers and musicians, right up to the U.S. President. "God Bless America", is sung by Florence Anderson, friend of Hulman-George family, underlining the pride of Americans who feel theirs is the nation chosen by God to represents the values of liberty and democracy to the world. The 500 Miles traditionally takes place over the month of May, with the whole month being reserved for testing and qualification: around forty cars compete for a place in the finals in which only the top thirtythree participate. Nowadays, due to budget limitations, the event is restricted to two weeks. With the previous rules, the last day

of qualifying was called Bump Day, whoever was still in a position to challenge could go out on the track and attempt to grab last place from the person who is slowest in the qualifying classification, described as being on the bubble. In the new regulations, Bump Day is also extended to the qualifying, which makes the race build up very exiting.

And so was born the drama of drivers without cars and cars without drivers, fear of exclusion and worry for those who risk not qualifying in a race where only the speed of the car is rewarded, regardless of who is driving. In fact, at Indianapolis it is possible for a driver to use a car that someone else qualified in.

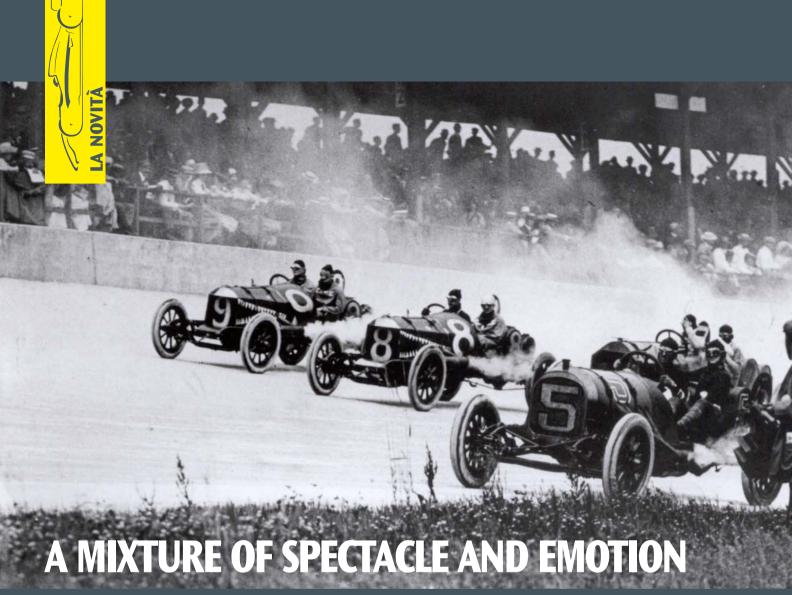
As far as the actual race is concerned, the cars begin with a





At the side, Scott Dixon's crew during the pit stop and underneath, Tony Kanaan experiments with the famous Indianapolis walls: thanks to the safety of the Dallara car he got out without any consequences





rolling start, that is comprised of eleven rows each with 3 cars. This year there will also be some two-seaters where the driver will be accompanied by a chosen member of the public, who will be fortunate enough to directly experience the emotion of the track.

The drivers do 200 laps of the rectangular two and a half mile circuit, with between seven and nine pit stops (with the chance to change tyres and refuel) which are necessary to complete the 500 miles. It is an intricate game of chess, where thirty three players involve themselves with different strategies and moves, at times sacrifices (for team mates), but always respecting the principle that it is best to win fairly, because at such high speeds cheating costs lives and the stains the honour of

heroes.

At the end of the race the winner and car are raised together on a platform almost five metres high, a metaphor that transforms the hero of the day into a legend forever. The first thing that is passed to the driver, after the sponsor's hat, is a bottle of milk, the nectar pure and white, the nourishment of the gods. The tradition began in 1936 when that year's winner was photographed celebrating drinking from an icy bottle of the typical creamy American milk. The local dairy producers in Indianapolis were the first to believe in this tradition and after 70 years it is still

Another tradition is the kiss of the so called brick-yard. The Indianapolis track was originally made from bricks and over time it

has been covered with asphalt, all except the finishing line which remains intact and the winner still kisses the bricks at the end of the race.

This is the 500 miles. A unique event, which occurs amongst equally interesting races that make up the Indy Racing League, which is not lacking exciting races, with twists and turns that never end. In this very American ritual, many nationalities (drivers, engines and constructors) are dissolved together with obvious cultural connotations. There is also a bit of Italy. Since 1997 Dallara has been the main character in the American competition. A real Italian in America, which the Americans fell in love with straight away, and with which the romance continues, more alive than ever.





On the left, the first turn at the inaugural race of 1911.

Above, Lou Meyer celebrates a victory in 1936, just before the toast with the ritual glass of milk.

As with tradition, Helio Castroneves kisses the most famous brick-yard in the world after his success in 2009: once upon a time the whole track was covered in bricks, today only one yard remains







THE TASTE OF TRADITION THE CHALLENGE OF INNOVATION

From Varano de' Melegari to Indiana, from Father Phil's sermons to the ritual coffee time spent with drivers before the start of the race, Engineers Andrea Toso and Andrea Pontremoli explain why the Italian factory and the Indy 500 have become one and the same

Andrea Toso, who is responsible for Dallara's American market, he has been with the team since it started to race in Indy. We went to see him in his office and asked him which was the best victory. He came up with a "classic" answer. "The performance is like

tasting something it doesn't last long, whereas victory and success are memories of that food, already eaten and no longer in existence. I am interested in success as a challenge, but once obtained you have to put it behind you and forget about it.

There are many more people

who know how to win than

people who can make good use of the victory. In work there is a commitment, the continuous effort for renewal and real communication. In this attempt there is no victory nor defeat".

We move to the office of Engineer Andrea Pontremoli, the company's CEO, and he also tells us about Indy, with the enthusiasm of a young boy

Engineer, what surprises you most in the 500 Miles? "The incredible mix of history and technology. Traditions that go back a hundred years (the winner's milk, the kiss of the brick-yard etc.) join together wonderfully with innovation and modernity, in

a race to the death, but always with respect for the other drivers. Suffice to say that the pit lane is open and all teams can see each other working". There must be a great sportsmanship and a festival atmosphere then? "Exactly. It really is a great party for all the family. Just think that, around the circuit, there are typical American houses, with gardens. The local people offer their gardens, for a token price (10-15 dollars), to people coming from outside, so they can pitch a tent and stay at Indianapolis for the entire event. The local residents of Indianapolis feel a part of the celebration and show incredible hospitality

through various gestures, big and small".

What role does Dallara play in this wonderful atmosphere? "A very important role. I'll tell you some anecdotes. There is a road in the middle of the circuit, Gasoline Avenue, which leads out onto the track. There are a series of offices along that road and Dallara's is the last one before you go out on the track. There is a tradition that the drivers stop and have a coffee in Dallara's office, before starting their engines. Also in that office, at eight o'clock in the morning, Mass is given in Italian by Father Phil, who has a friendly character. A quick sermon, about 15 minutes that finishes like this:



"the Mass is over. Go in Peace. And let the Dallara win!". So a great reputation has been built over years of racing and hard work.

"Well, what has struck me most is the reputation that Dallara has in that particular environment, amongst drivers, teams and supporters. I have seen the public chasing the Engineer, Dallara, with my own eyes, with a photo in hand, asking him for an autograph". The most exciting event? "Maybe it is the start. Seeing 33 cars lined up in the grid, with 400.000 eyeballs focused on the circuit and millions more on TV, and to think that those 33 cars have been built in Varano de' Melegari, Emilia-Romagna, in a small Italian village, of 2500 people, between the countryside and the mountains, fills me with satisfaction and makes me proud to be Italian." This is the Dallara and the spirit of main characters. With this mentality and professionalism, the American dream continues.

Alessandro Santini

Indy Racing League a home for Dallara since 1997

The Indy Racing League or IRL, from this year will be renamed IZOD IndyCar Series, and is most prestigious motor-racing series in the United States of America.

Started in 1996 by Tony George, owner of the Indianapolis Motor Speedway, where the 500 Miles takes place. In contrast with the direction of the CART championship, of which the 500 miles was a part of, he decided to organize the championship in a league of its own by subcontracting the most important races to rivals.

2008 was the year in which the teams that competed in the Champ Car Championship transferred to the IRL, forming a single championship for open-wheel cars. For the most part, the championship is made up of oval track races, of various lengths (between 2.5 and 4 miles), but since 2005 it has also included street circuits.

Dallara was chosen as the constructor (and has continued to be chosen up until the beginning of the new series), signing the contract with Indy Racing League in 1996 and by September, and after only seven months, was ready to present its new car in Las Vegas.

In January 1997 in the complex at Disney World, Orlando, Dallara entered its first race, and by the second competition in Phoenix it had success with Jim Guthrie, driver and team owner, who assembled the cars in his garage together with some fellow enthusiasts.

By 1998 Dallara's progress had been more than satisfactory, with 8 successes on 11 races, amongst which the first place in the 500 miles, driven by the Italo-American Eddie Cheever.

From then on the successes became numerous and were accompanied by recognition in the form of awards such as the "Louis Schwitzer" of the SAE (Society of Automotive Engineers) for the quality of the car designed in Varano. Dallara's representatives would go on to win the prize again in 2003 and 2008, the only example of a team winning the prize three

times in its forty year history.

The second generation of the Dallara car was introduced on 2000, and the third and current generation in 2003.

Dallara's victories continue to grow (in 2006, 13 victories out of 14 races): Penske is the team that has achieved the most victories to date, with the Parma constructor (38) and Sam Hornish, now employed in the Nascar Series was the driver who won most for Dallara (19 wins). Since 2007, the victories have become routine because, thanks to the reliability and the performance of the Dallara, the competition has shrunk.

"We win, but we also com in last", the Dallara engineer remembers half jokingly, highlighting the equal respect for the winner and the defeated and the obligation to support whoever comes in last even if it means sharing the honour of victory. In addition to the fact that you never feel as if you have arrived and are always improving.

In 2007, the Dallara won its one hundreth victory at Motegi in Japan with Tony Kanaan; the following year it was the turn of the charming and spirited Danica Patrick to win, the first woman to win a race at high level motorsport with open wheels. In 2008 the New Zealander Scott Dixon brought home the 500 mile and the championship.

In 2009, the championship was won by Dario Franchitti, with the Target Chip Ganassi team, whilst the 500 miles was won for the third time by Hélio Castroneves (who had already been triumphant in 2001 and 2002, with the Penske team). This brings us up to date, 15 May 2010. At San Paulo in Brazil, in the first Indycar race the Dallara took its one hundred and fiftieth victory.

At the end of May, the Varano business should get a "10" because that will be the number of 500 mile races taken by the Dallara. The most winning factory in 100 years of Indy 500.

a. s.



DALLARA AUTOMOBILI AND POSTER RIG: AN (ALMOST) FIFTEEN YEAR UNION

THE FUNCTION OF A DYNAMIC TEST BENCH THAT ALLOWS FOR THE TEST CENTRE TO REPRODUCE THE MOVEMENT OF SUSPENSION ON THE TRACK AND ROAD, FOR EVER MORE REFINED DESIGNS OF ALL TYPES OF CARS

Since 1997, Dallara has used a Poster Rig test bench to develop performance and enhance the setting of the cars it designs and produces and of its customers' cars, both track and road.

The number of teams that choose to use this kind of bench for testing, designed for entire cars and not just single components, is always growing, particularly in the current climate of strict regulation in track and road testing. This kind of bench gives a head-start in the delicate stage of setting up the car, both a road prototype that has not yet seen the light of day, or a track car.

Poster Rig is a dynamic test bench, suited to differently sized cars of various weights, it allows for the reproduction of real suspension movements (on track or road) and therefore can objectively analyse settings and suspension, for the suspension regulations, in particular springs and shocks, and the real influence of parameters such as height, centre of gravity and distribution of weight.

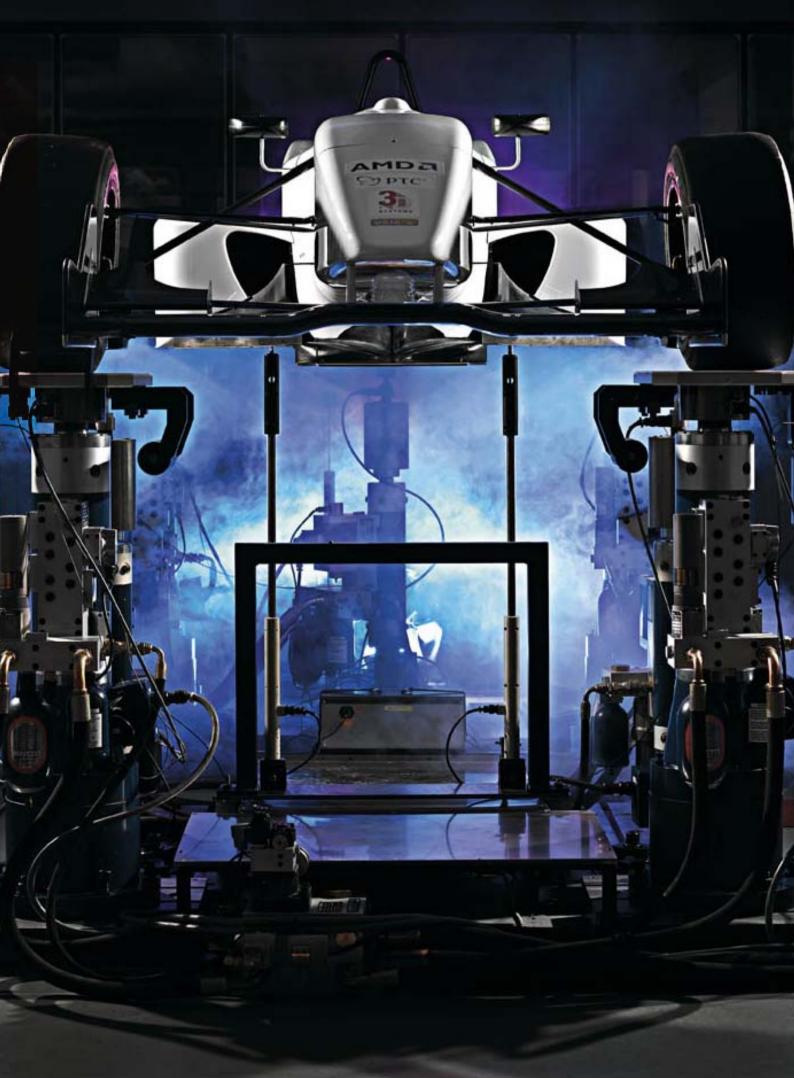
The Poster Rig has two settings: (4 plates) and 7-Post (4 plates + 3 additional actuators). In the 4-Post setting each wheel rests on a plate driven by hydraulic pistons whose vertical movements are controlled by a PC. The most common test ("Heave") provides a synchronized movement between four plates with a rising frequency (from 0.5 to 25 Hz). During the test the main sizes that impact on the set up are tested, for example, the contraction of springs, the speed of shock absorbers and the force of contact at the plates. By altering the calibration of the shocks and the rigidity of the springs we try to increase the contact between the wheel and the ground, and reduce variation around the average reading.

In the 7-Post setting, in addition to the four plates of the previous setting, another 3 pistons (aeroloaders) are added directly to the car's body to reproduce the effects of aerodynamic down force and the transference of the load during acceleration, braking and the distance covered on a

curve. With this setting it is also possible to use the telemetry data acquired on any given track, to reproduce a complete lap (setting "Track Replay"), with the aim of identifying the configuration of the car, during various manoeuvres, to maximize the tyre's force of contact with the ground and minimize movement of the car.

The reason for the success of this type of trial is that Poster Rig is able to give objective results, relating to the car's settings, in limited time frames, reducing the time and cost of on-track (or road) testing, where the conditions of the trial and the variables are much more numerous and much less predictable. In Italy, Dallara is one of two companies offering this type of service, and it has long believed in this type of machine and the advantages it is able to offer, using it for the development of its cars before they are released on the track.

> Alessandro Moroni, Testing Manager





"THIS DALLARA IS A BULLET!"



GIACOMO RICCI, ONE OF THE BEST PROSPECT OF THE CHAMPIONSHIP, TELLS US WHAT IT IS LIKE TO RACE ON TWO VERY DIFFERENT TRACKS SUCH AS BARCELONA AND MONTE CARLO, WITH ONLY A WEEK IN BETWEEN

Giacomo Ricci, at work on the meandering circuit at Monte Carlo

Massimo Costa

 he prestigious GP2 Main Series began last year on 8th May, on the Barcelona circuit, which is

immediately followed by the season's second test on Monte Carlo's street circuit. There have been twenty-four Dallara cars since 2005, and also the big leap to join the world of Formula One. Who will be the next Nico Rosberg, Lewis

Hamilton, Timo Glock or Nico Hulkenberg? They were, of course, the category's champions who passed directly in to F1. It is still too early to say. The first two races were held on completely different tracks: The permanent circuit in Catalunya and the track which runs through the streets of Monaco. There are only four days rest between one meeting and the next. The engines are stopped on 9th May and drivers, engineers and mechanics have a quick briefing to prepare for the transfer to Monaco where testing begins on Thursday 13th May. How does a driver prepare for two completely different races? How should the car be prepared? We asked Giacomo Ricci, who has already surprised many people this season.

"The first difference is the mindset, which is fundamental. In fact, on some of the turns at Barcelona, you can easily push the car towards its limits with an aggressive approach in the knowledge that, if you make a mistake, you can cut across parts of the track without causing to much damage to the car. Try to brake later and later and see what happens. Then, start thinking about your perfect lap. All of this changes at Monaco. There are no escape routes,

the slightest error in testing and you hit the guardrail and your weekend is over because you have to start from the back of the grid. Therefore you must reset the brain, think hard, and



go for a soft approach, beginning to increase the pace very carefully, lap after lap. Something else which differs between Monaco and the permanent circuits, is the road signs which show the distance to the bend, they are an important reference point for us drivers. Therefore you must look around and find your own personal reminders on the track. Of course, not a steward... who then moves. When we go out on a traditional track, there is usually rubber already on the asphalt from previous races and therefore you can get a good grip and go quickly straight away. It isn't like this at Monaco. Up until the day before the free practice, and also the weekend of the race, the track is open to everyday road traffic. Cars, scooters and even buses that leave oil and other debris. Every time you leave the pits, the track is treacherous and different from the day before. You will probably do the first laps of the weekend at Monaco in third gear and the following session in fourth because the rubber left by the tyres of the F1 cars allows for better grip. It's absurd, but it's true. Another difference is that Monaco track is unusually narrow and doesn't have space at the sides, only high

guardrails, when you go out on the track you enter an world that almost seems to be science fiction.

Everything feels even narrower and sense of speed is doubled. Perhaps

you're not even in fifth gear, and it seems like you're flying; whereas in the same situation at Barcelona, you would feel as if you are stationary. Furthermore, with the down force created by the aerodynamics, the car is glued to the track and you can

take all the curves at high speed. Therefore you don't have a moment to reflect, you are always tense which just wears you down you mentally. From a technical point of view, at Monaco the car has the maximum amount of down force and is essentially a "soft" drive, whereas at Barcelona you could have more options. But in GP2 there is very little available time, only 30 minutes of free practice before the qualifications, so getting lost in finding the right set-up is not permitted. The main work is done by the team at their headquarters, where they prepare the right set-up. This will be the last year for the current Dallara, the end of a threeyear period. For me it has been an exceptional car. The speed of it really leaves an impression, it is like sitting in a bullet. Compared to the previous model that we used on the Asia GP2, the Main Series car is definitely more stressful, it has more down force and therefore is quicker round bends. For example, when the Dallara from the Asia GP2 slid on the track, you could get it back, with this model you cannot, it demands more commitment and also has tougher steering. Both cars are great fun and teach you a lot".





mmanuel Esnault, is the ever present engineer at Renault Sport Technologies, and since the end of 2009 has been the manager of the World Series by Renault. A category where he knows all the technical, organisational and human aspects.

This is the sixth season for you with the Dallara's chassis in the WSR 3.5. A steady and happy relationship. Tell us about how all did begin, in 2005.

"As far as Formula Renault 3.5 Series was a merge between Eurocup Formula Renault V6 and World Series by Nissan, a choice between manufacturers had to be made. The level of performance of the Nissan-powered Dallara T02 chassis was very interesting: a ground effect car, cheaper to run and faster than a Formula 3000 car. Moreover, the background of Dallara Automobili in motorsport business was a warranty of quality and seriousness for such project."

Which is the main factor that convinced you to start a relationship with Dallara?

"The flexibility and the real motorsport spirit of a racing team, combined with the ability to manufacture race cars with an industrial dimension. Dallara has got all equipement and knowledge to start a single seater project from a

A SHARED LOVE

RENAULT SPORT TECHNOLOGIES AND DALLARA HAVE NOW COLLABORATED FOR SIX YEARS ON THE WSR 3.5. A STRONG AND HAPPY RELATIONSHIP GROUNDED IN THE EXPERIENCE AND EFFICIENCY OF TWO MASTERS OF MOTORSPORT, AND ON THE SAME GREAT PASSION FOR RACING

blank sheet, up to the delivery of spare parts. Mister Dallara is still very involved in technical orientations which can be considered as an unestimated added value. Moreover, they are all animated by a real customer-oriented service and spirit."

What did impress you the most about the Dallara's constructing philosophy?

"The Dallara single-seaters are reaching the best compromise between performance, safety, cost and quality on the market.

You know that a Dallara racing car does not require any important adjustment when delivered, this is a very important point."

So far, two Dallara chassis has been used for threeyear periods each: 2005/2007 e 2008/2010. Will the current one run also in 2011? Will you develope it in any way?

"We have made an upgrade kit from the Formula Nissan V6 car to the Formula Renault 3.5 standards in 2005. In the same philosophy, and with the same focus on season costs and teams investments, we have made a more important upgrade in 2008. We have decided, with our teams, to keep the same car through the end of 2011. We are today working on 2012 project, and we are keeping in mind that costs and investments for teams are the main topics."

How does the technical infos exchange happen when a brand new car is needed?

"First, Renault Sport Technologies defines what we want the car to be, in conjunction with market constraints and teams wishes. Then, we give these information to Dallara and they made us a proposal that we discuss altogether. Our two dedicated contacts are Ing. Luca Pignacca and Ing. Andrea Burzoni. They are very involved with us and we have created over the years a real working relationship with them, all within a great atmosphere and trust."

As soon as Dallara deliver to you the new singleseater, a long test and development period starts. Is the relationship between you and the factory a day-by-day one?

"Formula Renault 3.5 was one of the biggest development campaigns made for a new product for Dallara. The target was for Renault Sport to reduce the level of risk for its customers. Dallara was very helpful in assisting to all tests sessions and reacting very fast in case of technical

problems or any evolution to apply for the next development session."

How does the relationship between Dallara and Renault during the race season work?

"There is a weekly relationship, when it is not a daily one, between Renault Sport Technologies and Dallara Automobili. Several departments of Renault Sport Technologies are involved in the Formula Renault 3.5 Series technical aspect: Renault Sport Technologies Spare Parts Department at Dieppe, headed by Philippe Lalmand, who is attending all races with a dedicated spare parts service, and Renault Sport Technologies Technical Department, headed by François Champod. They are in relation with Federico Nenci for the spare parts supply and Andrea Burzoni for the technical follow up of the car."

What did impress you more about Dallara, overall?

"A real knowledge of Motorsport business and history. Renault Sport Technologies is keen on working with companies that share the same love for racing."



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