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Teenage kicks

The new Chevrolet Spark rally car for the under-17s

Laser quest

Maximizing productivity in wind tunnel testing



Interviewed

Stefano Domenicali

Team principal, Scuderia Ferrari

Alan Permane

Trackside operations director, Renault GP

Dave Wilcock

Chief engineer, MINI WRC Team

V8 wars

TOURING CAR SPECIAL: How DTM, Superstars and V8 Supercars will battle for supremacy in 2012 and beyond

SHOW PREVIEW Professional MotorSport World Expo 2011 Cologne, Germany, November 15, 16, 17

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CONTRIBUTORS**Mike Breslin**

Mike tracked down everybody from elusive sponsors to outspoken team managers to get the lowdown on Italy's Superstars, which aims to repeat the success of World Superbikes (p14)

**Brian Cowan**

Christchurch, NZ-based Brian endured testing conditions to deliver our V8 Supercars story, his city suffering an earthquake and severe winter storms this year. That's dedication! (p32)

**Graham Heeps**

Some rallying stories this time around for the editor, who visited the superb Rally Finland (p52), and got to grips with a new grassroots car in the form of the Chevy Spark (p6)

**Matt Joy**

Matt used his guest drive in a recent round of the Ma5da MX-5 series to check out one of the world's most popular entry-level race cars. Turn to page 20 to discover how he got on

**Joe Saward**

One of the world's most experienced Formula 1 writers, Joe is also a motorsport business expert and will be *PMW's* regular writer on the subject starting from this issue (p16)

A note from the editor

For years the junior single-seater formulae constituted international motorsport's most crowded marketplace. Now it seems the battleground is shifting to the unlikely realm of V8 touring cars.

What were once strongly regional championships, increasingly have designs on overseas expansion. First in the ring is Superstars, coming out of Italy with the backing of FG Group, the brains behind World Superbikes. The Australian V8 Supercars series already races in the Middle East, and wants to stage up to six annual events outside of Australia/New Zealand by 2015. And from 2013, DTM will export its own V8 touring car concept from Germany to the USA in concert with NASCAR and Grand-Am.

I understand the appeal of watching these V8 monsters. But is there really space for so many broadly similar players on the global stage? One issue with competing overseas is potential cost increases for the teams.

Another is that, while the cars are technically different from series to series, I'm not sure the casual fan will notice, or care. And even if you do manage to export a formula to additional continents, that's no guarantee of long-term success – witness the dearth of factory teams in WTCC.

I remain to be convinced that fans overseas, with motorsport touchstones of their own, will embrace these championships in the way that domestic audiences do. DTM and V8 Supercars in particular have passionately loyal local fan bases. And as someone who values regional differences and cultural diversity, I also feel a tinge of disappointment at the march of a generic 'global' vision.

Consider this: the English Premier League is soccer's most commercially successful national competition. Here, money from wealthy foreign owners and global TV deals persuades many of the world's top stars to slide about in the mud of an English winter. Yet a match ticket typically costs €50 (US\$80) or more, making regular attendance prohibitively expensive for many English fans. Germany's Bundesliga, by contrast, ensures that match highlights are primetime terrestrial viewing on a Saturday evening, and majority ownership in the hands of a single party is banned. The teams retain a stronger bond with the fans, who regularly pay no more than €25 (US\$40) per ticket, and sponsors – major automotive OEMs among them – line up to get a piece of the league's massive exposure to German consumers. It's all about how you define success.

Cologne's biggest soccer team, 1.FC Köln, has made a lousy start to the new Bundesliga season. Perhaps it'll be firing on all cylinders by mid-November, when Professional MotorSport World Expo takes place at the city's Messe. On the weekend after the show, FC is playing Mainz; why not head down to the RheinEnergieStadion to catch the game and a glimpse of the club mascot, Hennes the goat!

Graham Heeps

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The Windshear Rolling Road Wind Tunnel in Concord, North Carolina, USA, is among several facilities using Test SLATE as its control and data acquisition system

TEST PRODUCTIVITY GAINS

The Test SLATE test automation software from **Jacobs Technology** provides wind tunnel users with a low-risk solution for increasing the productivity of their test process

» Whether in Formula 1, where regulations limit air-on wind tunnel testing time, or elsewhere in global motorsport, the need for aero-data continues to grow while the time available to obtain it has shrunk.

This places significant emphasis on improving testing ‘productivity’ – or generating more data of unquestionable quality in less time. Two of the ways this can be achieved are reducing the time to run a test sequence, and reducing the number of re-tests that result from bad or questionable data.

To drive improvements, users are increasingly looking to their supervisory control and data acquisition system – the ‘mastermind’ facility system that provides automated sequencing of model positioning and wind tunnel test conditions while simultaneously acquiring (and managing) all data collected from force balances and vehicle model instrumentation.

Recently, a Formula 1 team set about replacing the supervisory control and data acquisition systems in its wind tunnels to improve productivity. It wanted a product that could be highly customized to detailed test requirements and easily expanded to future requirements without resorting to substantial modifications to the system software. Following a competitive selection process, Jacobs’ Test SLATE software was chosen as the solution.

“WITH TEST SLATE INSTALLED, JACOBS’ F1 CASE STUDY HAS SHOWN THAT TEST SEQUENCE EXECUTION TIMES HAVE BEEN REDUCED BY AS MUCH AS 30%”

Test SLATE’s sequence builder allows quick and easy configuration of test sequences without the need to write scripts or other techniques requiring software programming expertise. This module also includes the capability for Test SLATE to ‘self-optimize’ the test sequence as it is executed in terms of the time to perform the full set of desired test points.

Test SLATE allows the user to specify acceptable ranges (or allowable deviations) for independent test parameters. Data is acquired only when tunnel conditions and model positions have reached the desired settings, ensuring the resulting vehicle performance measurements qualify as good information. Data acquisition is initiated the instant the desired test conditions are achieved, not after a pre-defined time interval to allow for moving to the next point (a traditional approach).

Given the restrictions on air-on time in the wind tunnel, the

benefit of automating the test in this way is two-fold. Savings in execution time have proven to be significant, while data quality is enhanced – a true win-win yielding better data in less time.

To enhance the ease of integration into a wide range of facilities, Test SLATE has been developed to be hardware neutral. This means there is a large, pre-existing library of interfaces to diverse vendor devices and systems commonly employed in wind tunnel facilities.

For the project mentioned earlier, Test SLATE was actually installed in two different wind tunnels, each with its own generation of facility controls, model motion controls, and data acquisition components. From a user perspective, with Test SLATE as the common operational interface, both tunnels now operate identically – even though the hardware in the tunnels is significantly different. This enables operators to shift from tunnel to tunnel and provides common diagnostic tools for maintenance personnel to keep tunnels at optimum availability.

With the new Test SLATE-based system now installed, Jacobs’ F1 case study has shown that test sequence execution times have been reduced by as much as 30%. This gain has been achieved by utilizing Test SLATE in a traditional test sequencing mode, with only limited time spent so far in invoking the self-optimizing capabilities of the system.

Further improvements are expected as sequences are further optimized and other Test SLATE time-optimizing capabilities (not cited here) are engaged. <

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