



## Interview with Markus Duesmann, Head of Powertrain BMW Sauber F1 Team

Munich/Hinwil, 21.8.2008. The BMW Sauber F1 Team have now concluded their investigations into the KERS incident at Jerez in late July. Markus Duesmann, Head of Powertrain, gives us more details.

### What exactly happened in Jerez?

Markus Duesmann, Head of Powertrain: "The mechanic suffered an electric shock after touching the sidepod and steering wheel of the car. There was a high-frequency AC voltage between these contact points, the cause of which has been traced back to the KERS control unit and a sporadic capacitive coupling from the high-voltage network to the 12-volt network. The voltage ran through the wiring of the 12-volt network to the steering wheel and through the carbon chassis back to the control unit."

Note on capacitive coupling: this refers to an inadvertent transfer of electric voltage between two transfer media by inductive or capacitive coupling.

### Was there a serious danger to the mechanic and the driver?

Duesmann: "No, as only a small amount of energy can be transferred through this capacitive coupling effect. However, the energy is sufficient to cause an extremely painful reaction. The driver was insulated against the car by his racing overalls and gloves and therefore not in any danger."

### Why did the investigation take so long?

Duesmann: "It was not possible initially to reproduce the capacitive coupling effect in the car, as the problem was caused by a sporadic error in the control unit. Due to the extremely high frequency of the voltage in the steering wheel, the safety mechanisms and data recordings did not pick up on the error. In the absence of data, all the theoretical possibilities had to be systematically investigated and analysed in tests. Furthermore, the capacitive coupling effect only occurs under certain conditions. Without the option of driving the KERS test car used in Jerez again, we had to reconstruct these conditions. We also had to develop a model to be installed between the steering wheel and sidepod which replicated the characteristics of the human body as an electric transfer element."

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## What measures are now being taken to solve the problem?

Duesmann: "In addition to the measures required to tackle the issue at hand, the extremely far-reaching analysis we conducted also gave rise to other recommendations which are of great value for the development of electric KERS systems. Among the measures arrived at are changes in the design of the control unit to avoid capacitive coupling effects, extended monitoring functions for high frequencies and a conductive connection of the chassis components to avoid any electric potential."

## What will happen with these findings now?

Duesmann: "We have already handed over this safety analysis, complete with measures and recommendations, to the FIA, and will also make our findings available to the other teams at the next meeting of the Technical Working Group."

## When will the next track test for KERS take place?

Duesmann: "We will resume the testing programme once all the necessary amendments to the safety concept have been implemented. We expect this to be the case in the autumn."

For further information please visit the media website [www.press.bmw-motorsport.com](http://www.press.bmw-motorsport.com) (press releases, press kits, images, TV footage) and the official team website [www.bmw-sauber-f1.com](http://www.bmw-sauber-f1.com) (car, season, Race Club, team updates).

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