From F1 to Frontline: motorsport technology in defence

As Parliamentary Under Secretary of State for Defence Lord Astor stated recently, technology used in Formula 1 racing cars could help troops on the front line. In a sport where agility, speed and rapidly advancing technology is key to success, there is scope to bring off-the-shelf solutions to current defence problems from the race track to the battlefield.

Three years ago the Motorsport Industry Association (MIA) launched the Motorsport to Defence Initiative, designed to promote the capabilities of the sector and encourage and reinforce interaction between the motorsport and defence industries.

The MOD has of course noted the advanced engineering skills involved in designing racing vehicles which can attain high levels of performance and reliability over variable terrain whilst enduring extremes of temperature and adverse climatic conditions – ideal capabilities for an increasingly demanding battlefield.

Speaking at an MIA event at the House of Lords in July 2010, Parliamentary Under Secretary of State for Defence Lord Astor said: *"Marrying motorsport technology and military need is an exciting and innovative way forward."*

The House of Lords event in July was also used to announce two new contract awards for Formula 1 engines and electronics supplier Cosworth, who will explore how technologies used to protect racing drivers could protect frontline troops.

The first contract is for a military vehicle accident data recorder that could capture information about the severity of incidents, such as improvised explosive device (IED) blasts, and display it in a simple, easy-to-read format. The data could be used to better understand such incidents, aiding in the development both of equipment and the tactics, techniques and procedures used to counter IEDs.

The second contract is for a blast event and vehicle integrity system intended to allow a rapid assessment of the condition of a vehicle following an incident. The information could be used by engineers to assess the vehicle's condition, and potentially spot 'hidden' damage, such as twisting of the chassis, more easily. It could also be used by commanders in the field to inform decisions on the best course of action following a blast – whether to continue or to return to base for repairs, for instance. It combines Cosworth's motorsport sensor and data acquisition technology with blast simulation modelling from GRM Consulting Ltd.

Chris Aylett, Chief Executive of the MIA, said: *"The MIA is pleased that our Motorsport to Defence Initiative, launched just three years ago by new Defence Parliamentary Under Secretary Lord Astor, is yielding such immediate results. The UK motorsport industry can play a vital part in our economic recovery plans. We employ world-beating engineers delivering rapid, highly innovative, high-performance engineering solutions. The MOD has recognised how this unique British resource can enhance the protection and effectiveness of our frontline Armed Forces."*

Commenting on the Cosworth contract awards, Lord Astor said: *"These contracts we have placed with Cosworth could provide important innovations in battlefield technology. Enabling combat medics to have an early idea of what injuries they may have to treat could lead to more lives being saved. And by assessing the damage to the vehicle caused by an IED we can both capture forensic details to help tackle insurgents and make more informed decisions on repairing the equipment and future design."*

The Cosworth contracts are only two examples of how working with the motorsport industry has provided enhancements to military equipment. For instance, NAR Group drew on their experience of supplying equipment for the Paris-Dakar Rally to design a new dust-proof cooling system now used on the Panther, Mastiff and Ridgback armoured vehicles, increasing the number of vehicles available for operations. And Williams Hybrid Power Ltd has adapted its technology to develop an electromechanical flywheel to increase the power efficiency of the diesel generators that power forward operating bases in Afghanistan.

Another good example is Lola Composites Ltd, who specialise in the manufacture of racing car bodies. The MOD awarded its contract for the Watchkeeper Remotely Piloted Air System, worth £700 million, to a consortium led by Thales UK. Lola Composites is bringing its full range of design and manufacturing skills to the project as an official supplier, handling some of the tooling and the initial build of the UAV. Lola Composites also produces composite parts for many other military applications, including the entire structure for Meggitt Defence's Voodoo and Banshee UAVs.

At a time when finding more effective ways of working is more important than ever, the recent Cosworth contracts show how the MOD is continuing to strive for greater innovation and a deeper engagement with industry partners, both in the defence arena and beyond.

Further information

For more information, please visit:

Ministry of Defence

Web: **www.mod.uk**

Motorsport Industry Association

Web: **www.the-mia.com**