



# NEWS RELEASE

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**FOR IMMEDIATE RELEASE**

## Rail Crash Demo Previews New EU Legislation.

Britain's first full scale rail crash test in over 20 years drew stakeholders from across the rail industry to the Motorail Logistics site at Long Marston, where vehicle engineering specialists<sup>1</sup> MIRA performed a live impact demonstration on May 14<sup>th</sup>. The event showcased technology transfer opportunities between road and rail ahead of new EU safety regulations targeting the crashworthiness of modern trains.

The high-energy collision mimicked an impact scenario set out in the European Standard for crashworthiness (EN15227). Propelled by a heritage DMU travelling at 22mph, the test pitched a 32 tonne Mk 2 coach into a stationary class 86 locomotive, weighing in at 82 tonnes. During the impact, around 1.5 mega joules of energy dissipated to provide a graphic demonstration of the devastating effects felt by rail passengers when collisions occur.

On board were four 50th-percentile Hybrid III crash test dummies to provide a faithful assessment of occupant kinematics. 50<sup>th</sup> percentile dummies are designed to represent the average or '50%' male in both dimensions and weight and provide a realistic biofidelic response when seated. Each dummy weighs the precisely 'average' 78.4kg.

Accelerometers recorded the coach's deceleration pulse at the moment of impact, whilst an array of stills cameras and high-frame-rate digital video cameras recorded the crash dynamics - as dummies and interior furnishings flew in all directions. Dummies with their backs to the direction of travel would have suffered chest and abdominal injuries as they absorbed the weight of tabletops, ripped off by the front-facing passengers launched forward during impact. Broken limbs and head injuries were very likely: reinforcing how vital occupant protection is, even in relatively low speed collisions.

Externally, damage was at a minimum. Damage to the coach included a fractured buffer. The loco also had its buffers bent, but otherwise stood up the pounding well. Clear indication that the design did little to cushion the effects of the impact, passing high levels of deceleration directly to the occupants with devastating results; an issue the EU legislation aims to tackle head on.

Joanne Gleave, MIRA's Safety Development Manager explained: "*Although a full-scale crash like this hasn't been performed here in the UK for over 20 years, automotive crash testing is a daily occurrence for us at MIRA, so we were confident the demonstration would run to script and right on cue. We've been crash testing since the early 1950's and performed thousands of tests over the years, but never a entire loco and carriage, so we were all keen to examine impact zone and high speed film.*"

*More...*

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<sup>1</sup> In 2008 MIRA was recognised as the International Crash Test Team of the Year by Testing Technology International.

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For the event, MIRA partnered with Motorail Logistics which operates an ideal, off-the-network site at Long Marston in Warwickshire. With 20 miles of track, around 1,000 rail vehicles are currently stored there awaiting maintenance and/or refurbishment in Motorail's workshops. The two parties joined forces with help from The Rail Alliance, a national body providing a networking forum for member organisations, encouraging collaboration and innovation.

*Colin Flack of the Rail Alliance commented: "This event clearly demonstrates that the facility here at Long Marston is a perfect venue for this sort of safety development and look forward to playing our part in delivering safer rail travel to passengers throughout the UK and mainland Europe."*

MIRA provided a unique opportunity to witness first hand the energies involved when two substantial masses come together, dispelling any illusion that the UK lacks the ability to undertake full scale crash tests. The stage is now set for the UK to act as the European test bed for safety development.

- Ends -

## **Notes to Editors**

### **About MIRA**

MIRA is the leading independent design, development and test organisation for the automotive and defence industries. A cornerstone of the sector, MIRA delivers tailored solutions ranging from individual tests, to turnkey vehicle design programmes. Widely recognised as one of the best-equipped and responsive consultancies in the world, MIRA is where integrated simulation techniques couple with 32 major test facilities to deliver complex collaborative or turnkey projects for the transportation, defence & motorsport sectors.

At the UK HQ, a core of over 400 dedicated employees fuse the benefits of 32 major development facilities with advanced design & modelling techniques to slash both development timescales and the requirement to build costly prototypes in quantity.

MIRA's main development centre is concentrated into a highly secure 760-acre site in Nuneaton, Warwickshire. From this base, and 9 others and around the globe, clients access a technically compelling service. Operating across the whole range of transport technologies, MIRA provides particular expertise in: low carbon engineering, Intelligent Transport Systems (ITS), electrical/electronic systems, vehicle dynamics, aerodynamics, safety, thermal management, autonomous control, NVH, advanced powertrain integration and all aspects of durability.

MIRA is also responsible for the design and construction of numerous other proving grounds and major development centres worldwide.

### **About Motorail Logistics & the Rail Alliance**

Rail Alliance is a recently launched AWM financed organisation to promote the West Midlands Rail industry, its Chief Executive - Colin Flack is based at Long Marston Rail Storage Facility in South Warwickshire. Colin and Ruth Dunsmore from Motorail Logistics control part of the site and win contracts for rail vehicle refurbishments and rail storage.

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