Rail & Marine

Magnetic attraction

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For people, like myself, with professional and personal connections to Transrapid's test track in north-western Germany, the tragic events of Friday 22 September will remain with us forever.

Inevitably, and quite rightly, the accident focused the transport world's attention on the safety principles underlying the Transrapid maglev technology.

Though the German authorities have yet to complete their investigations, it appears from press reports that a control room oversight caused the Transrapid 08 Maglev to crash into a diesel-powered maintenance vehicle.

It is worth noting that the fundamental engineering of the Transrapid system means that it is essentially impossible for two maglev vehicles to collide. All maglev vehicles are under the automatic control of an Operational Control System (OCS) which oversees an intelligent guideway combining the functions of power supply, propulsion, signalling and positional feedback into one, failsafe, integrated system.

The motor in the guideway, rather than in the vehicles, achieves deep integration of route-setting, real-time monitoring of location, speed, segregation and power supply. This makes it effectively impossible to send two Transrapid vehicles with conflicting directions or speeds into the same section of guideway. It is also important to note that the public service maglev systems now being designed for Europe (as opposed to the protocols approved for test track operations) will make maglev/non-maglev collisions effectively impossible too, by placing all maintenance vehicles directly under the fully automated control of the OCS, thereby removing the potential for human error which appears to have been responsible for the tragic events in Lathen.

Despite the test track accident, Transrapid's fundamentally automated system has an unblemished safety record in passenger service. Since 1 January 2004, the company has been operational in passenger service linking Shanghai with Pudong International Airport 19 miles (30km) away. Maglevs operate every few minutes, each conveying around 500 passengers at a

cruising speed of 267mph (430kmh). On a typical day, the Shanghai system, running under fully automatic control of the OCS produces at least 1.16 million seat-km of transport capacity. It operates to a timetable defined to the second, and most operating days are completed with a cumulative total delay of zero seconds.

This exceptional performance makes the Shanghai Transrapid not only the fastest, but also the most reliable transport system in daily service on Earth. It is therefore no surprise that the Chinese authorities have re-affirmed, since the Lathen accident, their intention to build the intercity extension of the Shanghai system to Hangzhou. This will give a total system length of around 200km, equivalent to London to Derby, but with a journey time between the cities of only 27 minutes. Sino-German negotiations on the Hangzhou extension are now in their final stages.

At UK Ultraspeed, too, we still firmly believe that Transrapid maglev technology can fundamentally transform Britain's economy, enhance Britain's environment and transform Britain's transport.

Maglev's advantages over alternative forms of transport remain compelling. For example, a UK line could take up as little as 2.1m2 of land for every linear metre of guideway — six to eight times less than a railway and 45 times less than a three-lane motorway. At 250mph, a maglev makes less noise than a suburban train at 80mph. Over a London-Manchester route and assuming a typical power generation mix, a fully-loaded Ultraspeed emits 42g of carbon dioxide per seat-kilometre, compared with 62g for high-speed rail and 275g for air (a carbon-free power generation mix would make Ultraspeed 100 per cent emissions free). And the basic, unarguable, fact remains: Ultraspeed is faster than flying over most key UK routes, three to four times faster than current rail, and up to five or six times faster than driving.

The economic case remains compelling too. Ultraspeed delivers exceptional journey times which could transform access, connectivity and competitiveness in the regional economies of the UK. According to recent research, a national maglev line could generate an additional £60.7bn per year in foreign direct investment, as UK locations become more competitive in the global economy and as Ultraspeed removes the biggest single 'block' on the UK economy: an unreliable, congested and outdated transport infrastructure.

No-one at UK Ultraspeed is seeking to overlook the tragedy in Germany and

the impact that it will have on so many peoples' lives for years to come. However, we believe that the unique, and unrepeatable, set of circumstances that caused the test track accident must not overshadow the significant benefits that maglev technology has to offer in public service.

The debate about this country's transport requirements for the 21st century will continue in the months and years to come. We remain engaged in dialogue with government and expect to remain at the forefront of discussions as Britain strives to define the fast, efficient and sustainable transport system it so clearly requires in order to remain competitive in the global economy, while simultaneously reducing the environmental impact of transport.

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Internet:
http://www.theengineer.co.uk/liChannelID/11/Articles/296548/Magnetic%20attraction.htm