An Interesting Ride

We started moving in a most unspectacular fashion. The rate of acceleration was disappointing at first and really didn't seem to improve much as we gathered pace. So, I wondered, was this performance machine going to turn out to be a bit of a disappointment?

As we gathered further speed, the rate did not increase but neither did it diminish. The driver just kept on accelerating at the same rate and the reading on the speedometer kept on increasing relentlessly.

We passed 160kph, the old 'ton' in MPH, without slackening and continued to accelerate. At 220kph I started to think that I had misjudged this machine. It just kept on accelerating without a sign of slackening. My Renault Sport Clio which would have been far faster in the lower speed ranges would now be almost 'done', but not this machine!

250kph passed in the same fashion and now I was becoming impressed. At 300kph it became difficult to focus on close objects as we flashed past them, but little else changed - we just kept on accelerating!

As we approached 350kph it struck me that I had never been faster on land. In fact, up to about 1930, we would have been a chance for the World Land Speed record! 400kph came and went and now at last, the rate of acceleration had noticeably diminished. The speedometer crept up – 410, 415, 420, 423, 426, 427, 428, 429, 430 and finally at 431kph we could go no faster.

(1)What was the make of the vehicle?

(2) Where was I?

For the answers, see page **cvbcx**

Answers: (1) Thyssen-Krupp were the designers of the Mag-Lev train.

(2) The Mag-Lev train runs from the outskirts of the Shanghai CBD to Shanghai International Airport. The trip of 30km took 7 min 14 sec on the way out and 7 min 17 sec on the return trip. We accelerated for just over 3 minutes, then held top speed for about 1 minute before we started to slow down again!

So, you may be wondering, how would a fast car compare with the Mag-Lev over that distance?

Let's assume that a perfect road was built alongside the Mag-Lev track with no restrictions or constraints on speed of any kind. I have a lot of data on the performance of a Renault Sport Clio 172, so let's use that as the fast car in this comparison.

	Clio 172		Mag-Lev		Result	
Time (Secs)	**Speed**	**Distance (m)**	**Speed**	**Distance (m)**	**Winner**	**Margin (m)**
0.00	0	0	0			
3.6	60	30	14	10	Clio	20
7.0	100	105	25	28	Clio	77
15.3	151	400	53	120	Clio	280
28.0	187	1,000	94	380	Clio	620
46.6	210	2,000	144	1,000	Clio	1,000
64.5	220	3,000	188	1,820	Clio	1,180
80.8	222	4,000	226	2,750	Clio	1,250
97.0	223	5,000	258	3,920	Clio	1,080
113.1	223	6,000	286	5,130	Clio	870
145.4	223	8,000	328	7,800	Clio	200
177.7	223	10,000	363	10,800	Mag-Lev	-800
218.0	223	12,500	431	15,200	Mag-Lev	-2700
258.4	223	15,000	355	19,300	Mag-Lev	-4,300
339.1	223	20,000	280	26,300	Mag-Lev	-6,300
371.4	223	22,000	180	28,300	Mag-Lev	-6,300
403.7	223	24,000	100	29,500	Mag-Lev	-5,500
436.0	223	26,000	**0**	**30,000**	**Mag-Lev**	**-4,000**
452.1	223	27,000				
468.2	223	28,000				
484.3	223	29,000				
492.4	223	29,500				
497.3	223	29,800				
503.3	**0**	**30,000**				
Average	**214.6kph**	**Clio**	**247.7kph**	**Mag-Lev**		