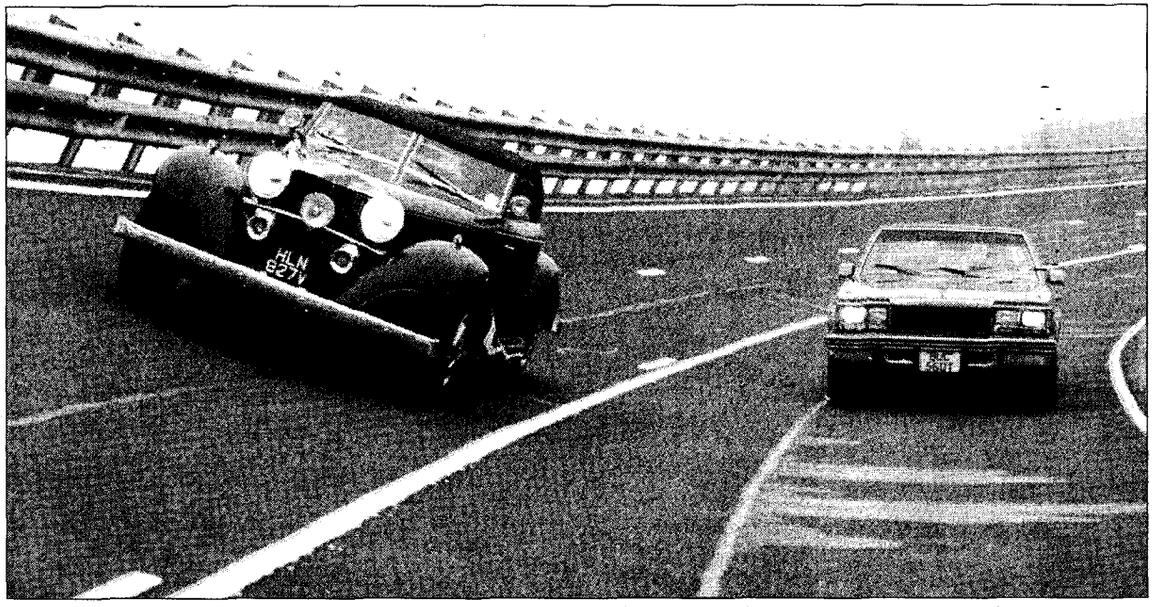
Ian Morton gets behind security at Britain's secret track to see a special Seville put through its paces



Against the standard Seville, right, the roadster gave less understeer and body roll, but a poorer ride over bumps

Shh! The one-off Cadillac goes on test

MIRA puts the car on the rack. Modifications often make matters worse, experts say

You can see — if they let you in — some unusual sights at the Motor Industry Research Association's testing grounds just north of Nuneaton in Warwickshire. Cars with strange lumps sticking out of them. Familiar cars alternately trundling and haring, hour after hour. Totally unfamiliar cars.

Secret stuff. The fate of million-pound projects hinges on it all, and everyone here is tuned in to secrecy. If a suspicious car is seen in the village nearby, residents report it to the MIRA security office. Industrial spies and journalists with long-focus cameras regularly try to crack the complex.

There was a snooper-snapper up a roadside tree on the day we were there. The MIRA security staff know him only too well: a regular pest. They were blocking his car and threatening to saw the tree down, but technically he could not be touched, for the tree is on public land. He is probably back up there now.

I wonder what he made of us — a team of MIRA dynamics experts, me, Rob Maidment, and Rob's car. Another unusual sight, Rob's car. A big blue Cadillac restyled like a 1930s roadster that featured in these pages last year. Constructed in Suffolk from a 1978 Seville, it was meant to be the prototype for a limited run of special two-seaters. Commercial reality has shelved the project, but the car has acquired a neo-classic status of its own and is often in demand for exhibitions.

Rob has never stopped trying to refine its chassis dynamics, and was recently rewarded with an enthusiastic reaction from Chris Snowdon, main professional driver for Mithril Racing, the development specialists based at the Goodwood circuit. Snowdon, who likened its handling to that of eminent machinery currently available for a great deal of money, spoke of nice balance and reassuring understeer, and declared that "dynamically the car is very impressive indeed for the enthusiastic driver".

> 'The rear end would bottom in a sharp dip on the track'

So how would it stand up to scrutiny by professional drivers whose aim is to interpret, as objectively as possible over a variety of surfaces, what it does and why it does it?

MIRA experts are among the coolest customers in the business. Hostile, even. They spend their lives putting cars on rigs, feeding all manner of stresses into their structures and measuring the effects, and rushing them around the multi-surfaced proving ground, using their experience to assess chassis geometry. They identify and quantify, and then they tell manufacturers exactly where things are wrong. They are not concerned with cosmetics. They pull no punches. They found Rob's Cadillac "entertaining".

It was not wholly a fun exercise. Too many rebuilds and "improvement" projects only degrade performance and behaviour, says MIRA dynamics manager John Whitehead, and even simple suspension stiffening intended to improve handling is often incorrect "because people think the handling is better because the ride is firmer, but it isn't".

Higher project engineer Ian Willows goes further. "It's dangerous to start changing masses and spring rates. You can easily get a situation that is far from ideal." Fellow engineer Peter Randle agrees. "Manufacturers have poured millions into getting the chassis exactly right. You are unlikely to improve things by changing the suspension or the wheel size."

But the Cadillac — the product of 6,000 hours of input by Rob and a number of craftsmen friends of his — turned out to be sound enough "within the limitations of the technology of the donor car".

On the MIRA track Peter Randle drove both the roadster and a standard Seville, Rob's other car. He found less understeer and body roll in the roadster, which has a lower centre of gravity and a weight bias to the rear axle, but the ride was poorer over hard-edged road features and the rear suspension would bottom in a sharp dip. Steering remained characteristic of any US car of the period.

I sat alongside as Peter flicked the roadster at motorway speeds from one lane to another in a succession of sickening but securely anchored lurches, and charged into tight corners with wailing tyres, sliding the front end round and letting speed scrub off — classic big-car behaviour, slack by modern standards, but "not unsafe or particularly uncomfortable, and it doesn't bite back".

He was getting used to the car's foibles, he admitted. He almost appeared to be enjoying himself.

What the spy photographer up the tree may have made of it all one can only guess. But should any of the motor magazines publish scoop pictures of a secret retro-styled Cadillac, you can all share the joke.