

It takes two

A funny thing happened on the way to the office - **Hannah Jeffery** talks to **Rick Woodbury**, president of Commuter Cars, about traffic jams, parking spaces and saving the planet on the way to work

In about 1982, Rick Woodbury, president of American firm Commuter Cars, was sitting in traffic in Los Angeles – a city famed for its air pollution – and took a look at the cars around him, each with only one person in it. “I contemplated how many millions were stuck in my situation every day and just seemed numb to it – a frustration without a solution.” He got thinking about possible answers – he had the time to – and it was at this point that the inspiration for the Tango struck. Designed and engineered by Woodbury and his son Bryan, this is a very narrow car – only 39in wide – but one that is otherwise not much shorter or lower than the average car – 8ft 5in long, 60in tall and 4in off the ground. “It was obvious that the length of a vehicle was much less important than its width for increasing freeway lane capacity in cars per hour,” says Woodbury. “Making a car half as wide, or able to fit in a half lane with adequate clearance, would allow a doubling of lane capacity.

Shortening a car would make a much smaller difference because most of the real estate used by a car is the space in front for reaction time and braking distance. Since roughly 90 per cent of all cars have only one person in them why would people choose a wide car for most of their trips, given the choice?”

According to Woodbury, the Tango is five inches narrower than a Honda Gold Wing motorbike.

This means it can safely filter between lanes of traffic, much like a motorbike, but the driver, passenger – who sits behind the driver – and their luggage remain clean, dry, comfortable and safe – not true for those trying to ride pillion in the rain. In order for the driver to feel comfortable speeding down the middle lane of a motorway in the car, however, it could be no wider than 1m from mirror to mirror. “It so happens that this leaves as much space from the centre of the steering wheel to the inside door panel of a good-sized car,” says Woodbury, adding, “The Tango has half an inch more elbow room than a Subaru Outback for example.”

The car’s narrowness was, in Woodbury’s words, “the entire reason that we built the car. It is an added bonus that I believe will be our foot in the door to doubling lane capacity,” he says.

It occurred to Woodbury that such a narrow car would tip over when cornering. “Being a casual Porsche race driver at the time I had the idea, I was quite aware of the relation of lateral G forces and centre



Doing a double take - according to its designers, the Tango often attracts a lot of positive attention on the road

Changing the length of a car makes little difference to congestion, but the Tango's narrow design means two can fit beside each other in one lane of traffic



type narrow car that ran on batteries, "just to prove our theory." It seems he was not alone in spotting early on that this was a potential way forward but, as is so often the case, funding fell short of bringing the

technology to market any sooner: "I remember speaking with Peter Schutz, and Helmut Bott, Porsche's president and chief engineer about hydrogen in 1981. They said that it was a 20-year project, and that they could only afford to work on five-year projects at Porsche."

Having waited for 20 years, and then proven that inexpensive lead-acid batteries would more than suffice for the average commuter, a functioning prototype of the Tango was built and running within months. However, it took much longer – eight years in fact – to bring

the idea to a point where it could feasibly be manufactured en masse. "As we built and developed our proof-of-concept vehicle we found it to be more and more valid. Little by little we got capital to advance the design to the point where it is today. The car's quite manufacturable now, but as with everything, it's very expensive in low volume," says Woodbury.

Redesign

The use of some smart software has helped the car's developers reorganise in their attempts to bring the Tango's price down. "SolidWorks allowed me to take the IGES files from many engineers - who had been contracted to do various parts of the design, and who used many different modelling programmes - into one programme that brought all the elements together at a price that we could afford. With the exception of the body shell and

of mass. I've been an advocate of hydrogen fuel for cars since 1975, and I knew that although a car using an internal combustion engine would be hard to ballast enough for stability, one running on hydrogen using iron-titanium hydride or a similar carrier for the fuel would be well ballasted, however narrow." He waited for nearly 20 years for a car manufacturer to work this out but it was only on hearing about Daimler-Benz's plans to purchase hydrogen fuel cell company Ballard stock that he and his son embarked upon the construction of a proto-

Seeing a Tango neatly parked in even the smallest space is great marketing for the car, says Woodbury

headlights, the whole car has been redesigned with SolidWorks," says Woodbury.

The price will also come down as the battery technology the Tango currently uses is further developed. It has been designed to accept any battery technology, whichever is the most suitable for the application in question. "Although the average commute to work and back in the US is 20 miles, less than half the range of the least-expensive lead-acid batteries," says Woodbury, "because the current model is so expensive, all of the next ten cars being produced are getting high-tech batteries. Seven are Li-Ion iron phosphate polymer, which can produce nearly 2,000hp, well over double what we can use, and a range of 150 miles. The other three are NiMH, which, although relatively low on power, will have the ability

to go 100 miles." The batteries can all be recharged from any source of electricity, including DC direct from photovoltaic cells.

Despite efforts to bring the price down, the Tango is currently ideally suited to anybody who finds themselves stuck in traffic or finding it hard to find a parking space - and who can also afford a \$108,000 to \$148,000 car, Woodbury jokes. Nevertheless, he insists, "It is an easy sell considering its price. As we come out with less expensive models it will become increasingly easier to sell and I don't think we'll have to do much, if any, marketing. Being passed by one in traffic or seeing one parking where only a motorcycle will fit is probably marketing enough. It also grabs positive attention on the road like no other car that I've ever seen."

The Tango has been tested on

the drag strip in Spokane, US, where Commuter Cars is based, and at Prodrive's test track in Warwickshire, UK. It is sold factory direct from Spokane and is available worldwide to order, but most have so far only made it as far as California - although one should also soon be seen nipping through traffic in London. Woodbury hopes that the Tango will eventually sell well around the world: "I'm counting on at least half of the single-occupant commuters. Some single-occupant commuters need more space for baggage, or have to transport people during the day. The point is to make sure that the Tango is the unequivocal choice when going into your garage to pick a car to go to work or on an errand that's within its range and carrying capacity." □

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The car is targeted at single-occupant commuters making journeys within its range and carrying capacity