

Hammerhead Eagle i-Thrust

Britain's Chevrolet Volt rival combines challenging looks and dangerous handling

MODEL TESTED Prototype

● Price na ● Power 85kW (claimed) ● Torque na ● 0-30mph 6.0sec
● Fuel economy na ● CO₂ emissions na ● 30-0mph 168 metres ● Skidpan 0.408g

WE LIKE Back-to-basics simplicity ● Innovative seating layout ● Low running costs

**AS SEEN ON
TV**



1 The i-Thrust's exterior fittings have a back-to-basics, shed-inspired theme. Door bolts are easy to open from outside and slightly more difficult (though not impossible, strangely) when you're locked in.



2 Double wishbone suspension promises sporty handling, but rear wheel travel is limited by the car's unusual weight distribution.



3 Headlight units have been 'appropriated' from an old Fiat Panda. It's not known whether Fiat gave permission for this, but the Italian maker would certainly benefit from the brand synergies.



4 Three-pin plug makes it easy to charge the i-Thrust at the roadside. Or at least, it would if it were connected to anything on the inside. And if charging didn't take half a day.

The voice at the other end of the phone said, "The lads are going to build a car which, they believe, might just help save the world." It belonged to Andy Wilman,

executive producer of a programme you might just have seen on TV called *Top Gear*; the lads, of course, being Messrs Clarkson, May and Hammond.

"Righto," we replied. "And where does *Autocar* fit into this plan?"

"We'd like your magazine, as the undisputed voice of record on such things, to road test it," said Wilman.

That was three months ago, since

when at least 18 man hours have been burned up in creating the Top Gear Car To Save The World. The car you see here – officially called the Hammerhead Eagle i-Thrust – is the eventual fruit of this labour.

Like the Chevrolet Volt, the i-Thrust is a range-extender hybrid, with its wheels driven solely by an electric motor. Believe it or not, it's fully road legal and, apart from its occasionally functional diesel generator, is also virtually emissions-free. The i-Thrust started life as a healthy TVR Chimaera and has since been re-registered as a van, hence its temporary legality. →



Steve Sutcliffe's static-packed action slacks meet i-Thrust's (very) live wiring. Contact!

WE DON'T LIKE Treacherous handling ● Poor performance ● Short range ● Dire build quality



5 Interior switchgear is a mix of bits that could have been found in a back-street mechanic's bottom drawer. Exposed (live) wiring is a notable highlight.



6 You're reminded of the car's TVR Chimaera underpinnings by the steering wheel. It's a nice sporting touch in an otherwise totally unsporting car.



7 Pedals are offset but otherwise easy to use. The brake feel is pretty rubbish thanks to the pump-assisted brake system, but at least it does stop. As for the clutch, er...

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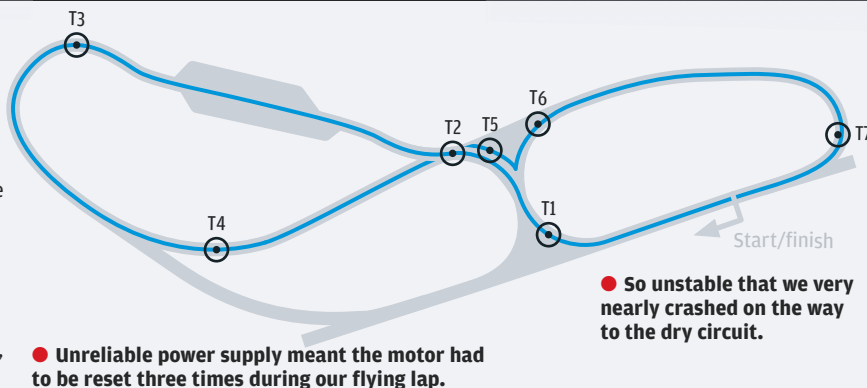


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DRY CIRCUIT
Hammerhead Eagle i-Thrust
 3min 10sec
Tesla Roadster
 1min 23.7sec

Hopelessly slow, but if we're honest we didn't fancy going any faster. Massive understeer followed very quickly by even more pronounced oversteer. Dreadful steering. Powerful, awfully balanced brakes.

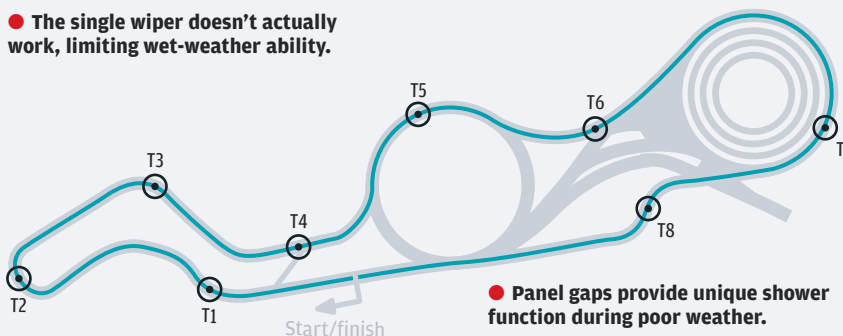


● Unreliable power supply meant the motor had to be reset three times during our flying lap.

WET CIRCUIT
Hammerhead Eagle i-Thrust
 na
Tesla Roadster
 1min 15.5sec

Top Gear engineering, electricity and sprinklers is not a combination that inspires a lot of confidence. We thought it safer to get out and walk.

● The single wiper doesn't actually work, limiting wet-weather ability.



● Panel gaps provide unique shower function during poor weather.

ACCELERATION Cloudy, 11deg C

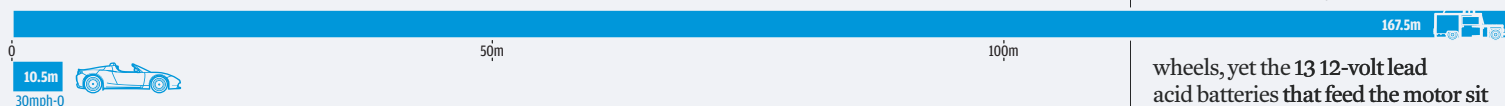
HAMMERHEAD EAGLE I-THRUST Standing quarter 23.4sec at 55.2mph



TESLA ROADSTER Standing quarter 18.5sec at 76.0mph, standing km 26.3sec at 116.7mph, 30-70mph 4.3sec



BRAKING 30-0mph 17.9sec



DESIGN AND ENGINEERING

★★★★★

Although the Hammerhead Eagle i-Thrust may appear to be a conventional three-box design (to which a smaller fourth box has been added, serving as a viewing turret for a brave third passenger), beneath its part-aluminium, part-plastic, part-wood exterior it is, in fact, a genuine hybrid. There are so many contributory factors to its technical make-up that it could, in fact, be more accurately described as a freak.

The basic running gear has been donated by a TVR Chimaera, so the platform on which the hybrid powertrain sits should, in theory, be fairly sound. There are ventilated steel disc brakes and double wishbones at each corner, while even the steering rack has a touch of TVR to it.

The Nankang tyres, however, aren't quite of the same standard; their primary duty in life was to provide the Citroën 2CV with its half-thimble of grip. And attached to the 1200kg i-Thrust, they are not, as we'll discover, quite as tenacious as they are on the *Deux Cheveaux*.

Where the Hammerhead Eagle gets more intriguing technically is in the type, and location, of its numerous power sources. The vast Wales & Edwards electric motor (pinched straight out of a milk float and producing a claimed 85kW) sits beneath the bonnet up front and sends drive directly to the rear

wheels, yet the 13 12-volt lead acid batteries that feed the motor sit precariously, in various places, →



Never before have we tested a car where the limit can be reached at such low speeds. Or in a straight line. No doubt as a consequence of the absurd weight distribution (it makes a 911 look evenly balanced), the i-Thrust is hugely susceptible to throttle and steering inputs.

At anything above 20mph, just trying to keep it going in a straight line needs steady nerves and an even steadier hand. And because the i-Thrust lacks ESP or ABS, you're on your own if you get it wrong.

Approach on a constant throttle and with so little weight over the skinny front wheels the car will understeer catastrophically. Try to regain front-end grip by braking and the fronts will simply lock, at which point any attempt at cornering is abandoned and you will crash.

This seemingly unappealing outcome is the lesser of two evils, though; try lifting the throttle and such is the sensitivity of the electric motor and the enormity of the weight transfer that the

i-Thrust snaps violently into oversteer. During one such moment, the lateral forces were so great that the range-extending generator broke free of its mounts, crashing across the cabin. Fail to catch the resulting slide and again you will crash. This time going backwards.

Hang on in there, though, and the i-Thrust will just sit there on opposite lock all the way through a corner. So it's intrinsically unsafe – lethal, even – but surprisingly amusing at the same time.

Under the skin

FEELS FAMILIAR

The Hammerhead Eagle i-Thrust may look like a collection of bits found after a hurricane has blown through a garden centre, but it is based on the tried-and-tested underpinnings of a TVR Chimaera. Except that most of the powertrain sits in the back, not at the front. This provides the i-Thrust with a

distinct – some would say unique – rear-engined handling bias, which may or may not be a good thing. Its main power source is a bank of 13 12-volt batteries, which provide drive to the rear wheels via a Wales & Edwards electric motor – the exact same motor you'd normally find in a milk float.



Milk-float motor is more securely fixed than the range-extender generator

◀ within the rear compartment.

Then on top of this sits a huge, extremely hard diesel generator, about five inches behind the passengers' small and relatively soft heads.

In theory the batteries can be recharged lightly while on the move by the generator – a nice touch – or you can pull over for a full charge at one of the UK's increasingly popular plug-in-and-pay recharging stations.

In reality, the diesel generator can barely produce enough puff to illuminate one of the indicators, while the plug-in-and-pay socket is just for show. It's not actually attached to anything, which means the only way to recharge the i-Thrust is to unbolt its batteries and hook them up to the mains for hours on end.

INTERIOR

★★★★★

There are flashes of genius present inside the i-Thrust, such as its three-seat layout and its unattached (and therefore unusually portable) stereo. The view forwards out of the vast, Land Rover-sourced windscreen is

also a refreshing discovery in an era of increasingly thick A-pillars.

On the whole, though, the i-Thrust is fairly limited in its appeal inside. The seats themselves, courtesy of B&Q, fail to provide either the comfort or support you'd expect of a contemporary road car. They would, at the very least, benefit from some form of cushioning.

The dashboard, while clear enough in its fundamental layout, is obviously from a bygone era visually (it's been lifted straight out of a Fiat Panda). And the driving position is similarly compromised, both by the offset pedals and the fact that you have to intertwine your left arm through the centre seat in order to grasp the TVR-sourced steering wheel properly.

Then there's the fit and finish. And the noise. The Hammerhead was so loud while on the move, thanks to its clattering bodywork into which the air would freely rush, that we couldn't actually take an accurate decibel reading. Standing still, and with nothing more than a light zephyr caressing its aluminium/wood/plastic body panels, it still recorded 65dB, the same as a BMW 7-series at 70mph. →



There's a TVR Chimaera under the skin; it's very well hidden, though...



Power comes from a cluster of 13 12V batteries at the rear of the car



The i-Thrust exhibits a slight rearward weight bias compared with the TVR

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CRUNCHING NUMBERS



Boot lid lifts well clear of the



Out of juice after three miles. Doesn't bode well for the Land's End trip

PERFORMANCE

☆☆☆☆☆

Martin Brundle once said that no matter how many times you've driven a Formula One car, the first time you climb back in after the winter testing break, you are always astonished by the raw performance.

A similar rule applies to electric vehicles over their first few feet of travel, though in the case of the i-Thrust the effect, it must be noted, is not as startling as in some rivals. Our best two-way average for the 0-30mph lunge was 6.0sec, and unfortunately we failed to even record a 0-60mph time; the i-Thrust tried

hard but ultimately failed to crack 60mph within the confines of MIRA's one-mile straight. In the end it reached 50mph in 16.6sec and ran out of juice at 55mph, making it the slowest car we have tested this century.

If the i-Thrust could compensate for this with a modicum of in-gear flexibility, its lack of fizz in a straight line would be easier to forgive. But it only has one gear, so what you see is what you get. And it isn't much.

The one area in which it did impress, sort of, was under brakes, and this was thanks primarily to its TVR ventilated discs. Having said that, the i-Thrust would lock up its front tyres at the merest hint of pressure on the brake pedal, so it required an incredible 549.6 feet in which to stop from just

30mph. That's slightly concerning, given that the Highway Code says the average stopping distance from 70mph is 215 feet.

RIDE AND HANDLING

☆☆☆☆☆

The Eagle i-Thrust has no ride or handling as such. Instead, it just

rumbles from one location to the next, its bodywork flapping in the wind as the 2CV tyres try their best – and occasionally fail – to prevent the body panels from rubbing on the floor.

In many ways it serves as a stark reminder of how far things have progressed in the realm of ride and handling in recent years. But there is something strangely likeable about the way it lurches around almost



THE SMALL PRINT Power and torque-to-weight figures are... well, would have been calculated using manufacturer's claimed kerb weight, if "the lads" had provided one. But suffice it to say, the i-Thrust will struggle to move at all in the event of Clarkson's wallet being on board. © Autocar 2009. Test results may not be reproduced without editor's written permission – but he's in a bad mood pre-Christmas, so you've no chance. For more information on the Hammerhead Eagle i-Thrust (are you serious?) we'd suggest BBC iPlayer. Or call the Top Gear office and ask them to send you a copy of the show on DVD; hey, we're sure you're a loyal licence fee payer, so it's not as if you haven't stumped up for it already, is it? No road testers were harmed during the making of this feature – although they did resort to wearing day-glo vests and thick rubber gloves in a bid for survival.

**AUTOCAR
ROAD TEST**

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opening for easy access to the power pack

uncontrollably on its suspension from one corner to another. There is a certain honesty to the way it bumbles about that is (thankfully) missing in anaesthetised, mass-produced cars.

Its steering response is a little too crisp, truth be told. At one point during testing, the Hammerhead went into a monumental tank-slapper while being driven in a dead straight line. After that we didn't bother much with testing it through corners, although it did somehow register a lateral load of 0.408g on the skidpan.

BUYING AND OWNING

☆☆☆☆☆

There will only ever be one i-Thrust, and that's probably a good thing, but this does make it hard to attach an accurate value to the car.

Still, day-to-day running costs should be reasonable considering the price of electricity, allied to the relative ease and affordability with which parts – such as its shed-sourced door handles – can be replaced.

The main problem with running the i-Thrust every day would be the inconvenience factor, given that its batteries need to be removed and recharged every 20-25 miles. But then, as Daimler-Benz discovered over a century ago, you've got to start somewhere before you can progress.

AUTOCAR ~~Wreck~~ ROAD TEST

No 4935 1/2

Hammerhead Eagle i-Thrust

AUTOCAR VERDICT ★☆☆☆☆

Sets the base level of achievement in the zero-emissions sector



TESTERS' NOTES



STEVE SUTCLIFFE

In reverse this car will do the same speed as going forwards, and there's a good chance it'd be more stable.



MATT SAUNDERS

At 30mph the noise is the same as a TVR Sagaris on the limiter in third. At 50 it's like a pneumatic drill.



JAMIE CORSTORPHINE

When does the Clubsport version go on sale?

JOBS FOR THE FACELIFT

- Metallic paint would be worth considering for the Mk2 Hammerhead; it could be called the HammerRight.
- Some sort of rear-view mirror wouldn't go amiss.
- Lose the clutch pedal on the Mk2. It's hardly worth having; in fact, why is it there at all?

That's right: in the end, and despite its showing one or two very dim flashes of genius, it's hard – no, it's impossible – to regard the i-Thrust as a success.

Its hybrid system looks good on paper but fails to deliver much in practice, its range and performance are rather pathetic compared with anything else on four wheels, while its styling is unlikely to win fans among those of us blessed with the gift of sight. And remember, a perfectly fit TVR Chimaera went to its grave to bring us this monster.

The creators of the i-Thrust are to be applauded, if only because they have built a vehicle that exists and is capable of providing actual transport for three people without too much destruction to our troubled climate. As to whether it will help save the world or not, the answer is probably not.

AUTOCAR ROAD TEST TOP FIVE

MAKE	1st	2nd	3rd	4th	5th
Model	TESLA Roadster	MITSUBISHI i-MiEV	HAMMERHEAD EAGLE i-Thrust	ELECTRIC Golf Cart	REVA GWiz i
Price	£94,000	£25,000 (est)	tbc	£1495	£8495
Power	248bhp at 5000-8000rpm	63bhp	85kW (claimed) at 1rpm	3bhp at 1rpm	15kW at 1rpm
Torque	276lb ft at 0-6000rpm	133lb ft	tbc	tbc	tbc
0-50mph	3.9sec	na	16.6sec	No chance	We're not patient enough
Top speed	125mph	81mph	55.6mph	19mph	51mph
Fuel consumption	280wh/mile	na	na	na	na
Kerb weight	1238kg	1080kg	1200kg	225kg	500kg
CO₂/tax band	0g/km, 9 per cent	na	na	na	na

There is no more sophisticated or desirable electric car.

★★★★★

Capable and highly developed, but quite expensive for its size.

★★★★★

Defines better than any other the point at which a shed becomes a car.

☆☆☆☆☆

Lower top speed and less wind protection, but better build quality.

☆☆☆☆☆

Awful to drive, daft to look at, and sadly still in production.

☆☆☆☆☆

Every Top Five See Page 84