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One Big Step for Tesla, One Giant Leap for E.V.'s



Bradley Berman for The New York Times

FREALITY SHOW Tesla's second electric model is the stylish Model S, with an E.P.A.-rated range of up to 265 miles

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AUTOMAKERS have a favored buzzword for promoting important new models: game-changer.

Excuse me, but the game is not so easily changed.

Put simply, the automobile has not undergone a fundamental change in design or use since Henry Ford rolled out the Model T more than a century ago. At least that's what I thought until I spent a week with the Tesla Model S.

The 2012 Model S, a versatile sedan that succeeds the company's two-seat Roadster, is simultaneously stylish, efficient, roomy, crazy fast, high-tech and all electric. It defies the notion that [electric cars](#) are range-limited conveyances.

While driving a Model S with the biggest available battery pack — 85 kilowatt-hours — on a restrained run through Northern California wine country, I was able to wring 300.1 miles from a single charge. The E.P.A.'s rating for equivalent gasoline miles per gallon is 88 m.p.g.e. in town and 90 on the highway, with a 265-mile range.

On a more enthusiastic romp from my home base here to Santa Cruz and back, I sampled what the 362-horsepower electric drivetrain was designed to do: bolt. Tesla says the car can zip from zero to 60 in 5.6 seconds and tops out at 125 miles per hour, but it was the silent, near-instantaneous bursts from 35 to 65 along the Pacific on California Highway 1 that best demonstrated the S's otherworldly quality.

I managed to make that 207-mile round-trip with about 25 miles of battery charge remaining when I pulled into my driveway. I never gave a second's thought to range, batteries or kilowatt-hours. I just hauled amps. It's probably best for my driving record that I didn't test the performance version of the Model S, which raises the ante to 416 horsepower — and a 4.4-second dash from zero to 60 m.p.h.

The Model S, which went on sale in June, is built in a Tesla plant in Fremont, Calif., where a Toyota-General Motors joint venture once made cars.

The Model S's sleek exterior suggests Maserati, Jaguar — or, especially in the shape of its grille, Aston Martin. "If people make that aspirational brand reference, I'm psyched," said Franz Von Holzhausen, Tesla's chief of design.

Perhaps the design team's greatest accomplishment is lending James Bond styling to a five-passenger sedan that Tesla says has the lowest aerodynamic drag of any production vehicle — an impressive drag coefficient of 0.24. The seductive shape of the Model S beats even the appliance-like [Toyota Prius](#).

Yet the S also has a practical side: an optional rear jump seat for two children increases the total capacity to seven. I loaded 30 folding chairs for a school event without needing to flip down the second-row seat. With no engine, the Model S has a sizable second trunk in front, which Tesla calls a frunk.

Tesla is all about cranking things up. From the technical side, the car's chief characteristic is abundant power, delivered by exceptionally high currents put through a device called a drive inverter.

There a lighthearted side, too: in a nod to the 1984 mockumentary "This Is Spinal Tap," the audio system's volume control goes to 11. (The idea came from Elon Musk, the chief executive.) Big-hair headbangers will not be dissatisfied with the rock-concert sound quality.

If the Model S is Aston Martin on the outside, it's Apple on the inside.

The Bauhaus-stark interior is dominated by a 17-inch touch screen — imagine a jumbo iPad embedded in the dashboard — giving digital control of nearly every automotive function. The interface is brilliant, but potentially spellbinding. Lighting, climate and music selection are intuitive. It let me do things as diverse as raising the chassis when pulling into my uneven driveway to switching the steering feel from comfortable to sporty.

There's a high-definition backup camera, and full Web browsing is available — even when the car is in motion, a capability that safety regulators may one day frown upon. A Google-style search on the navigation screen, for addresses or a keyword, pulls up results that can be directly converted into turn-by-turn guidance. It is an ingenious improvement in automotive navigation.

Another innovation is Tesla's ability to wirelessly push new features or software updates to cars already on the road. For instance, Tesla said it would soon be downloading a change on how much or how little the car creeps forward from a standstill.

The screen size can sometimes seem overwhelming. But its inherent coolness wins the day, especially for the next generation of motorists. When my 15-year-old daughter first saw the car's Web browser, it was "like" at first sight: she immediately logged on to Facebook.

Throughout the week, I found myself sneaking away to Berkeley's winding hilltop roads to experience the smoothness of the electric drivetrain. The half-ton battery pack is under the floor, providing a low center of gravity that helps to give the 4,700-pound Model S its ninjalike handling.

At high speeds and low, the car goes where you put it. Detecting noise intrusion in the cabin requires a stethoscope, although the optional 21-inch wheels add a decibel or two.

The Model S's charging capability also figuratively cranks up to 11. With 50-amp service from a 240-volt outlet, I added back about 30 miles of driving for every hour of home charging. Highway fill-ups are even quicker for Model S owners using one of the Tesla Supercharger stations in the network announced last week.

Tesla hides the charging port behind the driver-side taillight. "If you're an owner, you know where it is, but there's nothing from the outside that screams 'Plug me in,'" Mr. von Holzhausen said. When you approach with the charging cord in hand and push a button, the door pops open, revealing the port.

Yet Tesla sometimes takes its urge to reinvent too far. When parked, the outside door handles completely recede into the body. This makes opening the door a multistep process, and it can take two or three attempts before working. Other design imperfections include an artsy visor that's too small to block the sun and mirrors made of fun-house plastic rather than, well, glass. And the trade-off for industry-leading aerodynamics is limited rear visibility.

More nitpicks: the lighting in the back seat is too dim; there are no parking sensors or guidelines on the backup-camera image to help guide you; the grip you'd use to close a front door is poorly positioned — it looks good but doesn't help much; and there are no overhead handles to grip while speeding through a turn.

Will these issues cost Tesla a single customer? Probably not.

Now, the \$83,270 question. My Model S test car, equipped with an 85-kilowatt-hour battery pack, started at \$77,400. The final price included the \$3,750 Tech package; premium sound system (\$950); and personal delivery to your home or office. Nappa leather seats add \$1,500.

Budget-conscious shoppers can save money by dialing back from the roughly 230 miles of consistent real-world range delivered by the 85-kilowatt-hour pack. The 60 kilowatt-hour model, providing about 175 miles, saves \$10,000. A drop to a 40-kilowatt-hour pack, with about 130 miles of real-world range, takes off another \$10,000. In the other direction, the fully loaded Signature Performance model is \$104,400. The car qualifies for a \$7,500 federal tax credit.

While the arrival of the Model S shows that Tesla is growing up, the company is not yet prospering. Timely delivery will be crucial to the company's success. The Roadster, which used the [Lotus Elise](#)'s body, initially had production delays and technical setbacks.

Since then, the company improved its processes and quality controls by hiring scores of experienced auto industry professionals. Even so, in an S.E.C. filing last week, the company said that Model S production this year would be about 3,000 units instead of the 5,000 previously announced. Tesla also said it planned to raise cash by selling more shares; the government has eased some conditions of its \$465 million loan to the company.

At the price of the Model S, buyers have their choice among several fantastic luxury sedans. But compared with the Tesla, they will seem behind the technology curve — not as quiet or as magically speedy, and not capable of running on anything but fossil fuel.

Though Tesla's products are not yet affordable to the masses, this is a car that a lot of people can aspire to, and maybe even stretch their budget to buy. No single new model can overhaul the auto industry, but the Model S, along with its charging network for long-distance travel, suggests that Tesla is playing for keeps. If the car's appeal can be transferred to higher-volume models, the Model S could become the Model T of an approaching petroleum-free era.