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I Am Silent, Hear Me Roar

It doesn't snarl like a Lamborghini, but Tesla's new Model S is no eat-your-broccoli all-electric car, says Dan Neil—more like eat-up-the-pavement-while-grinning-ear-to-ear

By DAN NEIL



Andrew Yeadon for The Wall Street Journal

Tesla Model S at SpaceX

THIS TESLA MODEL S thing you've heard so much about? You know, all-electric sedan, Silicon Valley, that guy from SpaceX? This is one amazing car. I mean, hard-core amazing. But first and foremost, gentle reader, it goes like the very stink of hell. Fifty-to-100-mph acceleration in the \$97,900 Signature Performance model I drove is positively Lambo-like and... wait, let's stop right there:

People who like fast cars are sensualists. And screaming up through the gears of an Italian sports car—getting that flit and loft in the belly, tasting the saliva of speed—is a pleasurable and addictive sensation. They don't call it dopamine for nothing.

Unfortunately, in a car like a Lambo, other people can hear you being stupid for miles around. At full tilt, those cars are like civil-defense sirens, if civil-defense sirens alerted you to the presence of awful men in gold watches and track suits. It's embarrassing.

Tesla Model S Features



Tesla Motors

But in the dreamily quiet Tesla Model S, when you hit fast-forward, the film speeds up but the soundtrack doesn't really get much louder. The pitch of the electric whine goes up, the suspension sinks down, but compared with an internal-combustion sports car—quaint thing that it is now—this car slips silently as a dagger into triple-digit speed. You can cut traffic to bits in this thing and never draw the jealous ire of your fellow motorists.

The Signature Performance model is powered by a 416-horsepower AC synchronous electric motor producing 443 pound-feet of torque between zero and 5,100 rpm, with a zero-to-60-mph acceleration of 4.4 seconds and a quarter-mile elapsed time of 12.6 seconds. The SP package is equipped with a high-capacity drive inverter and twin 10-kilowatt-hour charging inverters for rapid recharge (about four hours). It should come equipped with a lawyer. You're going to need one.

The Model S—indeed, high-performance electric vehicles in general—will take some getting used to, even a new vocabulary. We currently don't have a good term for EVs' distinctive concentration of mass, with batteries slung low as possible and centroid to the vehicle. While traction batteries are heavy, and mass is bad for acceleration and agility, the lower center-of-gravity often compensates with higher levels of cornering, especially when a car wears rubber like the Signature Performance edition's sticky 21-inch summer tires. How about "corner-levering mass"?

Whatever, the Tesla's got it in spades. The car's flat, floorpan-mounted battery pack (85 kWh) accounts for about 30% of the significant total vehicle weight, 4,642 pounds. And yet, with a C-of-G comparable to that of a Ford GT supercar, the Tesla corners like it's tethered with magic. What do you call that?

“The outcome of Elon Musk's grand experiment in vertical integration is far from certain. But the car is dope.”

I'm not going to dwell much on the back story. Elon Musk, creator of PayPal and chief executive of civilian rocketry firm SpaceX, took over Tesla in 2008 and proceeded to promise the moon and the stars for the Model S, an all-electric premium full-size sedan with up to seven seats, a claimed 300-mile range, and a base price, counting the federal \$7,500 EV tax credit, of \$49,900.



Dan Neil drives the Tesla Model S, possibly the most technologically advanced all-electric car to date. Plus, a roundup of other notable electric vehicles: the BMW ActiveE, the Honda Fit EV and the Mission R, one of the world's fastest motorcycles. Photo: Tesla Motors.

At the time, Tesla was building, rather badly, small numbers of the all-electric Roadster, which was based on a modified Lotus chassis, and losing money like mad. In terms of mass-production car building, Tesla didn't have a stick in the ground three years ago. And here we now are, looking at the Model S, which, if everything works as advertised—something I couldn't discern in an hour-plus test drive in Los Angeles last week—would rank among the world's best cars.



Andrew Yeadon for The Wall Street Journal

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Tesla had a little luck along the way. The 2009 acquisition of the Toyota/General Motors joint venture plant in Fremont, Calif., came with a very nice paint shop, idle stamping machines and many other production resources. It also helped that at the time the domestic car business was holding a yard sale on manufacturing equipment.

Still, the uniquely un-sourcable Model S has obliged Tesla to do much of the car's subassembly in-house, including all of the aluminum body and chassis stampings, most of the injection-molded plastic, the traction motor, battery pack, and more. These folks are casting their own aluminum chassis nodes, for heaven's sake.

The outcome of Mr. Musk's grand experiment in vertical integration is far from certain. But the car is dope.

At 196 inches in length, the Model S is a large car that exploits the benefits of purpose-built EV design. The hood is sleekly low—no internal-combustion engine to conceal—and the cabin floor is flat, thanks to the rear-mounted electric motor. Without an IC engine up front, the Model S doesn't have to accommodate a big radiator. The car's sultry front clip conceals three small heat exchangers to cool the battery/power electronics and two condensers. The lateral lower grille intakes feature active shutters to close when extra cooling isn't needed.

2012 Tesla Model S

Base price: \$49,900 (after \$7,500 federal EV tax credit)

Price as tested: \$97,700

Powertrain: Battery-electric vehicle with rear-mounted three-phase, four-pole AC synchronous motor, high-capacity drive inverter, liquid-cooled 85 kWh lithium-ion battery pack, single-speed reduction gear (9.7:1), rear-wheel drive

Horsepower/torque: 416 hp at 5,000-8,600 rpm/443 lb.-ft. at 0-5,100 rpm

Length/weight: 196 inches/4,642 pounds

Wheelbase: 116.5 inches

0-60 mph: 4.4 seconds

Top speed: 130 mph (electronically limited)

EPA estimated highway range: 265 miles

Cargo capacity: 31.6 cubic feet (rear seats up)

Stylistically, the Model S has something of the sinuous, languid form of a Jaguar XF, one left in the sun too long. Note the brilliant bow of brightwork around the window openings and chrome spear between the taillights. At the bidding of the Model S's key fob, the door handles pop out from the bodywork and then retract flush with the bodywork when everyone's aboard. The car's B-pillars are trimmed with black-glass panels that look stunning when paired with the panoramic glass roof, and taken as a whole, seen in the California sun, the Model S is a glowing, glassine tranche of well-heeled wickedness.

Useful, too. The front section of the car—the abandoned engine bay, if you will—provides a 5.3-cubic-foot stowage area, which Tesla calls the "frunk." The rear hatch encloses a relatively vast 26.3 cubic feet or more than 50 cubes with the seats down. The Model S also offers optional and quite novel kids' jump seats, for seven-passenger seating, though about that I remain dubious.

With a structural monocoque almost entirely of riveted, extruded or cast aluminum—with a sprinkling of high-strength steel—the Model S's lightweight construction is in line with and not radically different than high-end car makers such as Ferrari and Mercedes-Benz. Uniquely, the Tesla's battery pack, less than 5 inches thick and the size of a coffee table, bolts to the bottom of the car, increasing structural rigidity and forming the car's aero-optimized flat underbody. Tesla believes the Model S is the most aerodynamic road car in the world, with a 0.24 coefficient of drag, and has the most rigid car chassis in the world. Nice bit of engineering, that.

Out on the street, suspended with the speed-adaptive air suspension, the Model S has an utterly unshakable, gantry-like vibe to it, even with the big meats in the wheel wells. And yet, given the constraints of our test drive, I can't really describe the car's handling. I'll need at least three months to be sure.

The Model S offers a choice of three battery packs: 40, 60 and 85 kWh capacity, corresponding to a highway range/acceleration of 160 miles/6.5 seconds, 230/5.9 seconds, and 300/5.6 seconds, respectively. The Signature Performance edition couples the biggest battery with those twin power inverters and hotter software.

The Tesla's battery pack (more than 7,000 Panasonic nickel-cathode lithium-ion 18650 cells) are warrantied for eight years and 100,000, 125,000 or unlimited miles, depending on pack size.

The other inimitable flourish is the car's huge, 17-inch capacitive touch-screen console, a glass-panel interface handling vehicle, climate, audio and vehicle functions. It's the attack of the iPhone, if you like. This is the one stumble in the Model S's draftsmanship. While this panel works beautifully—the navigation map display is especially nice—the display is embedded rather gracelessly into the leather-and-carbon trim dash.

So, fittingly, it's a spaceship. The Model S is the most impressive feat of American industrial engineering since, well, a couple of months ago, when Mr. Musk's SpaceX successfully launched and recovered a spacecraft that rendezvoused with the international space station.

Don't get me wrong. I'm prepared for disappointment. The thing could burst into flames or be found to cause cancer of the nether regions. But right now, I have to say, I'm fairly fond of it.

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