

FIRST DRIVE

2012 Tesla Model S [w/video]

Proof That An Impressive Sport Sedan Doesn't Need To Burn Dead Dino Juice



By [Michael Harley](#)

Posted Sep 11th 2012 11:57AM

One-hundred years from now, the Smithsonian museum at our nation's capital will host a display of history's most revolutionary automobiles. The collection will include the 1866 Dudgeon steam wagon (one of the earliest self-propelled vehicles), the 1886 Benz Patent-Motorwagen (the first combustion-powered automobile) and the 1908 Ford Model T (the first automobile mass produced on an assembly line).

Most certainly included, among the dozen or so other pioneering automobiles, will be a 2012 [Tesla Model S](#).

Slightly more than a few years after the first prototype debuted in March of 2009, Autoblog was able to [spend an evening with an early production model](#) of the innovative all-electric sedan touted as "the next step to accelerate the world's transition to electric mobility." Much has been said and written about Tesla's enormous undertaking, but we brushed off the hype, ignored the rumors and cut through the layers of misinformation. It was time to drive.

After several inquisitive hours behind the wheel, we were smitten – the Tesla Model S really is the world's first practical, no-compromise, non-combustion automobile.

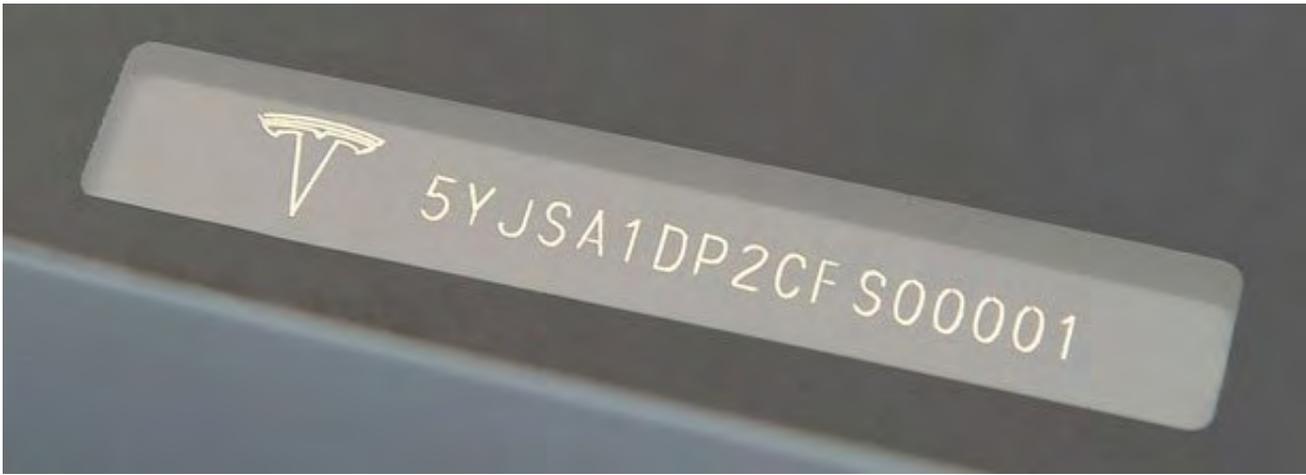


The last time we were in a Model S was October of 2011 when [Tesla invited us to its Fremont assembly plant for a ride in an early beta model](#). It is hard to judge a vehicle from the passenger seat, so the exercise left us more frustrated than appeared – we needed time behind the wheel.

It didn't take long. [Elon Musk](#) (Chairman and CEO of [Tesla Motors](#)) delivered the first ten production vehicles to customers in June of this year. Unfortunately, with [vehicles exiting the plant at a relative trickle](#), the company still wasn't lending out cars to the media for extended reviews.

Circumnavigating the dilemma, we called [Jason Calacanis](#). The Internet entrepreneur founded Weblogs, Inc., in 2003. The publishing company is credited with starting [Engadget](#), [Joystiq](#) and [Autoblog](#) – yes, he's our founding father. Jason was fortunate enough to take delivery of VIN S00001, the first Signature Performance model handed to a customer, a few weeks ago. A happy customer of Tesla from the early days (there is also a [Roadster in his garage](#)), he was generous enough to allow [Autoblog](#) an extended test drive.





Jason's 2013 Tesla Model S is the range-topping Signature Performance model. While Tesla offers the sedan with a standard 270-kW (362-horsepower) electric motor and a base 40-kWh battery (good for a range of about 160 miles), the Signature Performance features a 310-kW (416-horsepower) three-phase, four-pole AC induction motor with copper rotor generating 443 pound-feet of torque. Powered by an 85-kWh microprocessor-controlled lithium-ion battery, it promises a range of about 300 miles on a charge. For those keeping score, those numbers put the Model S in an A List performance category.

When ordering his Model S, Jason went click-happy on the options and purchased just about every accessory. The Model S cheats the wind with a stunningly low .24 drag coefficient. Base price of the Signature Performance is \$97,900 – Nappa leather with carbon fiber interior accents, active air suspension and 21-inch alloy wheels are all standard. The black paint is a no-cost item, as is the black upholstery with contrasting piping and gray wheel finish. However, add-ons such as the all-glass panoramic roof (\$1,500), anti-chip paint armor (\$950), rear-facing seats (\$1,500) and high power wall connector (\$1,200) will push the price into six-figure territory. As configured, Jason's car was about \$103,050 before incentives and credits. (Jason ordered the third row option, with two rear-facing seats bringing total passenger capacity to seven, but the module has not been installed in his vehicle yet.)

One should approach the Model S from the side to appreciate its enormity. Even in flattering black, pictures don't do its stage presence justice – the flagship Tesla is five inches longer than a [BMW X5](#) sport utility vehicle and one inch wider. The styling is very European, with more than a hint of [Jaguar](#) in its lines. Sleek and sexy from just about any angle, the Model S cheats the wind with a stunningly low .24 drag coefficient.





With the sleek car-like black key fob in pocket, a quick tap of any of the recessed door handles will awaken the sedan. After a momentary pause, the requisite door handle extend slowly. The procedure is impressively futuristic to onlookers, but the process is slow and the door still requires a slight manual tug to open.

The center stack's stunning 17-inch capacitive touchscreen flat panel captures everyone's attention. Unlike the [RAV4 EV](#), [Honda Fit EV](#), [Coda sedan](#) or even Tesla's own Roadster (itself built on a modified [Lotus](#) platform), the Model S was engineered from the onset to be an electric vehicle (EV), it's not constructed on a modified internal combustion engine (ICE) platform. Instead of putting the battery down a spine, or eating up space in the trunk, the four-inch thick battery pack is bolted beneath the chassis. This location keeps the space-devouring energy storage below the passenger compartment. It also delivers more room for passengers and cargo.

At first glance, the cabin appears overly simple (many would consider it spartan). By design, it lacks most of the traditional switchgear, buttons and knobs found in today's vehicles. However, once the key-wielding operator drops into the driver's seat, the Model S comes to life – there is no ignition switch – as multiple glass panels are energized. While the primary flat instrument panel (viewed through a sculpted three-spoke multi-function steering wheel) is impressive by itself, it is the center stack's stunning 17-inch capacitive touchscreen that captures everyone's attention. The oversized rectangular piece of glass, stretching from the top to the bottom of the dashboard and bordered in aluminum, effectively eliminates all mechanical switchgear for the climate controls, infotainment, navigation, ride height, heated seats, defrosters, moonroof, door locks, trunk, frunk, vehicle configuration and more. Although intimidating initially, it is very intuitive and easy-to-use in practice – no owner's manual required. It is, without question, brilliantly executed.



The only physical buttons or knobs, besides the tiny hazard switch and glovebox releases on each side of the flat panel, are the window switches on each door, the obligatory steering wheel stalks and the column-mounted transmission lever. Even then, all are very high quality components taken straight from the [Mercedes-Benz](#) parts bin (keep in mind that [the German automaker is a key investor in Tesla](#)).

As mentioned, the operator does not "start" the Model S in the traditional sense of turning a key or pressing a button. Instead, proximity sensors acknowledge that a fob is within the cabin and that an adult's derriere is in the driver's seat. Once these two requirements are met, the vehicle automatically boots up, just like a quick computer. It's a bit awkward unlearning decades of conditioning about how to start a vehicle (and a real pain-in-the-ass when moving a car around for a photo shoot), but after a dozen times, we became comfortable with the process.

The parking brake (clamping those additional sets of calipers on the rear rotors) is electronically actuated when the transmission is moved in and out of a forward gear. Unlike most of the EV models we've recently piloted, the Model S has no "creep" – the term applied to automatic transmission-equipped combustion-powered vehicles when they edge forward slowly when in gear – but an upcoming software update will include that option. Instead, for now, the driver must apply gentle pressure to the accelerator to move the Tesla at slow speeds. Thankfully, the engineers have done a very good job tuning throttle sensitivity. After a few moments, low speed parking maneuvers become very natural. Unfortunately, we found rearward visibility challenged, even with a high-definition reverse camera. Audible parking sensors at each end and a forward-looking camera to alleviate some of the blind spots are on our wish list.



Those who expect the Tesla Model S to drive like a large version of the company's Roadster will be wrong. Instead, it behaves like a well-honed European sport sedan.

It is indisputably quick whether pitted against EV, hybrid or ICE vehicles. While the Roadster makes muted electric motor gear noises, like a zippy golf cart on steroids, the Model S is eerily silent. Only the g-forces of acceleration and the blurring outside scenery give hint of the change in velocity. The single-speed fixed gear (with a 9.73:1 reduction ratio) makes quick work of accelerating the sedan off the line. There is no exhaust note, or even an electric whine, to mask the sound of the rubber tires squirming under the stresses of torque. It is indisputably quick whether pitted against EV, hybrid or ICE vehicles (recent [testing by Motor Trend pegs the Performance Signature Model S at 3.9 seconds to 60 mph](#)). Top speed, according to the automaker, is 130 mph.

Tesla has used an extraordinary amount of aluminum in the construction of the Model S chassis. Peel back the painted aluminum sheetmetal to find lightweight alloy stampings, alloy castings and alloy extrusions everywhere. All are designed to keep mass to a minimum (the effort only helps so much with an EV, as the Model S still comes in at a rather portly 4,647 pounds). The low mounting position of the batteries, the necessary unwieldy part of an EV, keeps the center of gravity just above the pavement.

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try{document.getElementById("fivemin-widget-blogsmith-image-822385").style.display="none";} catch(e){}
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The rigid chassis, featuring double-octagonal alloy rails running lengthwise and high-strength steel optimally placed for bracing, forms a solid platform for the sedan's active air suspension. Damping is fixed, but as the Model S accelerates, the chassis is automatically lowered to optimize aerodynamics (the center flat screen may be used to alter ride height when approaching obstacles, such as driveways). Chassis flex is non-existent and we didn't hear a single panel utter a peep or squeak. The bane of EVs is often numb electric steering. Again, the Model S seemed to

pass with flying colors (the steering effort is adjustable, also through the flat panel – no surprise, we liked the Sport setting best).

Thanks to the powertrain's rear-mounted configuration, the five-door boasts a very favorable weight distribution for handling (about 52 percent of the vehicle's mass is over the back wheels). We didn't have a chance to tackle any canyons, but we did dart through plenty of traffic effortlessly. The chassis felt heavy and solid, like the large sedan it is. Body roll was minimal and the sedan felt very stable and comfortable regardless of how quickly we transitioned from one lane to the other.

Placing the electric motor in the rear has other advantages too. With the propulsion system mounted far from the driver's ears, the sedan is ghostly quiet at cruising speeds. Add in arrow-like wind resistance and the sound attenuating effect of that thick layer of batteries between the passengers and the road, and the cabin becomes as peaceful as a yoga studio.



Battery-powered vehicles use regenerative braking to recover some of the energy wasted during slowing or stopping. To prevent an unnatural feel (many overly aggressive systems cause excessive drag to extract as much energy as possible), Tesla engineers deliberately toned-down the amount of regenerative braking to ensure the Model S retained a sports car feel from the driver's perspective. The sedan, from our seat-of-the-pants impressions, reacts much like a six-cylinder ICE sports car when downshifting a gear. It is so familiar that we frequently forgot we were driving an EV. Regenerative braking traditionally has another drawback, of course. Most of the time, it delivers an odd pedal feel, when the system transitions on and off, but none of that was apparent with the Model S.

The ICE-like range of nearly 300 miles completely eliminated our EV anxiety. Unlike most EVs that are fitted with undersized brakes to take advantage of regeneration, Tesla has engineered its Model S like a high-performance sports car. All four corners feature thick ventilated disc rotors, with massive multi-piston monobloc calipers clamping down on each. Braking is a non-event, especially with sticky high-performance Continental Extreme Contact DW summer compound tires (size 245/35ZR21) at all four corners.

Design, chassis and driving dynamics aside, the real game changer for the Model S is its available 85 kWh lithium-ion battery – the ICE-like range of nearly 300 miles completely eliminated our EV anxiety. Jason brought the car to us with less than half a charge. We understandably fretted, until noticing that the numbers weren't falling rapidly like prices at Wal-Mart. They were holding steady, with real-world estimates based on driving style that were accurate and, well... comforting. Jason was not the least bit concerned over how much battery we were using either, even though he still had another appointment to get to after our drive. And, for the first time in recent memory, our eyes were not locked on an EV's battery gauge.



While this first attempt is impressive, Tesla has also left room for improvement on future models. In addition to the aforementioned need for backup sensors we would like to see additional cameras to ease parking. More importantly, second-row occupants deserve their own climate control in the spacious rear half of the cabin as this type of passenger pampering is all but expected at the price range.

But skeptics of the Tesla Model S need just to take one for a spin. Tesla's all-electric sedan excels at being an impressive and engaging sport sedan first.

We frankly approached our first drive with leeringness – after piloting dozens of advanced-powertrain vehicles over

the past few years, we've been let down more often than not. But it took only ten minutes of jockeying through congestion, and a few foot-to-the-floor acceleration runs, to erase our doubts. The Model S truly is truly revolutionary. Unlike all of its predecessors, burdened with concessions, trade-offs and compromises in the interest of technology, Tesla's all-electric sedan chooses to excel at being an impressive and engaging sport sedan. The fun-to-drive four-door then seals the deal with its powerful, emissions-free and long-range powertrain.

Pioneering vehicles end up in museums – expect to show your great-grandchildren a Tesla Model S someday.

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