



Lexus Reimagines the Global Flagship Saloon with the All-New LS

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- Radical design with coupe-like silhouette, yet with the interior spaciousness of a prestige saloon
- New Lexus Global Architecture - Luxury platform delivers the greatest agility and comfort yet in an LS
- All-new twin-turbo V6 engine producing 415bhp/310kW
- 10-speed automatic transmission
- Lexus advanced safety system
- Luxury in every aspect, inspired by Japanese aesthetic traditions

In 1990 the Lexus brand was launched with the unveiling of the LS 400, a car which heralded a breakthrough approach to luxury, comfort powertrain smoothness, build quality and the application of innovative technologies, supported by unparalleled levels of customer service and satisfaction. The world debut of the fifth generation Lexus LS at the North American International Auto Show in Detroit demonstrates how Lexus has consistently raised the benchmarks set by its original model.

The LS is all-new, inside and out, reflecting a strong and uniquely Japanese identity, while designed as a true global car, destined to be available in around 90 countries worldwide.

“Not only will the LS symbolise the Lexus brand, it will become the definitive new generation luxury car, embodying Japanese tradition and culture,” said Toshio Asahi, LS Chief Engineer. “As such, it must go far beyond what the world expects from a luxury car.”

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Longer, lower, wider and more exciting

The new LS is longer and lower than the model it replaces, and debuts a striking new exterior design, with a coupe-like silhouette, punctuated by the new Lexus design language. A driver-centred, performance feel comes from the car having been built on Lexus's new global architecture for luxury vehicles, an extended version of the rear-wheel drive GA-L platform that also underpins the new LC luxury coupe. This helps secure a more dynamic driving experience while at the same time raising the level of renowned Lexus ride comfort.

The original LS won acclaim by anticipating what luxury customers would want, rather than simply amplifying what established prestige automobile brands offered at the time. In that same spirit, the new LS's spacious cabin, unique appointments and forward-thinking technology will redefine what is expected of a global flagship saloon.

Chief Engineer Asahi said: “We set previously unheard of targets and resolutely pressed ahead towards these unprecedented goals. The customers who are going to want to own a Lexus LS are already surrounded by luxury in their day-to-day lives, people who have a sharp eye for authenticity from the start. We wouldn’t turn their heads with a conventional premium product.”

A flagship reborn

The new LS is true to Lexus’s more dynamic direction. Each previous generation of the model marked advances in luxury, craftsmanship, performance and safety in their own way, with the most recent version adding much more emotional design and engaging performance to the mix.

To create the new LS, Lexus started afresh, reimagining what a flagship saloon should be, as if it were launching its brand all over again. The goal was not to improve on what has been done before, but to exceed the expectations of luxury customers worldwide.

Omotenashi, the Japanese concept of hospitality, remains a common thread that runs through all LS models. In the context of a luxury automobile, it means taking care of the driver and passengers, anticipating their needs, attending to their comfort and protecting them from hazards.

Vehicle Dynamics

More than ever before, luxury saloon drivers demand greater handling agility and performance feel, without sacrificing comfort. It’s one of the hardest balances to achieve in a vehicle, yet Lexus’s new GA-L platform meets the challenge. The platform made its debut in the LC coupe and now, with a longer wheelbase, underpins the new LS. Maximising the benefits of a low centre of gravity and weight distribution, the new LS has a wide and low design and is only offered in long wheelbase form.

The GA-L platform is the stiffest in Lexus’s history, setting the stage for improved handling, ride smoothness and cabin quietness. At 3,125mm, the wheelbase is 35mm longer than the current LS long wheelbase model.

The latest generation of Vehicle Dynamics Integrated Management (VDIM) helps achieve an exceptional ride and handling balance. This system implements co-operative control of all vehicle sub-systems – braking, steering, powertrain and suspension – to control the car’s basic longitudinal, lateral and vertical motion, as well as yaw, roll and pitch. Securing optimum control of vehicle behaviour helps gain exceptional ride comfort, better traction and safety, and handling agility. Active anti-roll bars and Lexus Dynamic Handling (LDH) with independent front and rear steering further enhance the LS’s handling. VDIM can also aid stability when driving on split-friction surfaces, such as icy patches on dry Tarmac.

Lexus engineers used lightweight materials, including ultra-high-tensile steel and aluminium, to carve more than 90kg from the weight of the current LS’s platform and body. These savings, together with the use of a new V6 engine and greater body rigidity, contribute to the car’s more dynamic driving quality.

The new platform lowers the car’s centre of gravity by placing most of the mass, including the engine and passengers, in a more central and lower position in the chassis. Special braces in the engine compartment and stiff aluminium suspension towers are among a series of features that help bolster the strength of key chassis structures.

The LS has a history of outstanding suspension compliance, yet Lexus saw opportunities for new gains to be made in this area as well. For example, the multilink suspension has double ball joints

on the upper and lower arms to permit control of the smallest movements from driver inputs and road conditions. Beyond sharing the workload, the double ball joint arrangement helps optimise suspension geometry to increase wheel control and gain more precise steering response with better initial effort. To reduce unsprung weight, and thereby promote agility and comfort, aluminium is used extensively in the suspension.

Twin-turbo V6 and 10-speed transmission

An all-new 3.5-litre V6 engine has been designed specifically for the new LS, giving both high power and excellent fuel efficiency.

The engine is indicative of the more dynamic approach being taken by Lexus, offering V8-level power without sacrificing fuel economy and minimising noise and vibration. The output figures of 415bhp/310kW and 600Nm of torque represent sizeable gains compared to the V8 unit featured in the current LS. The engine's long stroke and optimised stroke-to-bore ratio contribute to high-speed combustion and the efficiency of the twin turbos, helping the LS post a projected nought to 62mph acceleration time of 4.5 seconds (with all-wheel drive).

Perhaps more critical is the way Lexus has tuned the engine and transmission to deliver instant acceleration and a constant build-up of torque towards the engine's red line.

A ladder frame structure in the cylinder block, redesigned engine mounts, electric waste gates and numerous other features help gain the kind of remarkable powertrain smoothness for which Lexus is renowned. The driver will be able to tailor powertrain response and feel by selecting Normal to Sport and Sport+ drive modes, with just enough of the exhaust note being audible to enhance the sporty feel.

The LS marks the first use of a 10-speed automatic transmission in a luxury saloon, the system having made its debut in the new LC coupe. It is a torque converter automatic, yet with shift times that rival those of dual-clutch transmissions. The wide bandwidth afforded by the 10 closely spaced ratios is ideal for all forms of driving, helping provide an optimal gear for all conditions.

The driver can execute shifts using paddle controls, but many will prefer to use the advanced electronic control system, which anticipates the driver's input. The system chooses the ideal ratio by monitoring the acceleration, braking and lateral G-forces.

When accelerating from standstill, the close ratios of the low gears and the shortened shift time enable a rhythmical and exhilarating feel as the car gains speed. The twin-turbo engine's high torque matches ideally with the higher gear ratios for effortless, relaxed motorway cruising, while very quick downshifts provide direct acceleration with no lag in G response.

Torque converter lock-up is activated in all ranges, except when starting off, to provide a direct feel, while at the same time supporting fuel efficiency.

Crafting a unique identity

"The LS is the flagship of the Lexus brand," said Chief Designer Koichi Suga. "More than any other model, it embodies the history and image of Lexus and serves as a symbol for everything the brand stands for."

Following the "Yet" philosophy, that has been passed on through successive generations of the LS, Lexus created a design offering the room and comfort of a prestige three-box saloon, yet with the stylish silhouette of a four-door coupe - a look that holds a stronger appeal for younger luxury customers.

Lexus designers took full advantage of the new platform, with a lower profile and length on a par with a prestige, long-wheelbase saloon, to give the new LS a stretched, ground-hugging appearance. Compared to the current LS, the new model sits about 15mm lower, while the bonnet and boot are 30 and 41mm lower respectively. This is the first Lexus saloon to feature a six-side window design, and the first to feature flush-surface windows that integrate smoothly with the side pillars.

To preserve headroom with the new, lower profile, there is an outer, slide-type sunroof. There is also a unique rendition of Lexus's signature spindle grille, with a mesh texture that appears to change in different light, created using intense CAD development and the hand-adjustment of thousands of individual surfaces.

Five new wheels have been produced for the LS, including new 19 and 20-inch designs. The 20-inch premium wheels have a brilliant look, created with an electroplating technique known as spluttering. All but one of the designs feature a hollow rim structure that helps reduce resonance generated by the tyres.

Progressive comfort with traditional inspiration

Creating a new standard of flagship luxury is not simply a matter of adding more features. Inspired by the principles of *Omotenashi*, Lexus sought to instil a luxury in the LS's cabin that welcomes and envelops the occupants and treats the driver like a partner.

"I suggest that you simply open the door and experience that immediate, intuitive sense that you're looking at an interior that is unlike any luxury car before," said Chief Designer Suga.

New seat designs, including 28-way power front seats with heating, cooling and massage functions, exemplify this approach. The organically shaped dashboard design clusters information displays at a uniform height to support the "seat-in-control" layout - the driver can operate all systems without having to change their posture.

While making the new LS more of a driver's car, Lexus also lavished attention on the rear seats, producing a design that provides seamless continuity between the trim and seatbacks. There are heating, cooling and massage options for rear seat occupants, while power-controlled rear and front passenger seats are available with a Shiatsu massage function and a raised ottoman leg rest as part of an extensive rear seat luxury package that offers more legroom than in any previous LS. With this optional package, the seat behind the front passenger can be reclined up to 48 degrees, and raised up to 24 degrees to make it easier to exit the vehicle.

Because the new LS is lower than previous models, Lexus has equipped the optional air suspension with an access function. Activated when unlocking the car with the smart key, access mode automatically raises the vehicle and opens the seat bolsters to welcome the driver behind the wheel.

The intersection of tradition and technology

The lighting and an all-round attention to detail express the unique aesthetic Lexus has produced in the new LS. It again turned to Japanese culture for a new approach to creating trim elements, combining traditional influences with advanced manufacturing techniques. This can be witnessed in signature touches, such as ambient lighting inspired by Japanese lanterns and armrests that appear to float next to the door panels.

Natural woodwork and the application of sophisticated sliced wood and laser cutting technologies are used, inspired by the patterns found in Shimamoku wood, creating new interior finish options

including Art Wood/Organic, Art Wood/Herringbone and Laser Cut Special. Compared to the straight grain Shimamoku pattern, the LS's new cross grain is larger with sharper contrasts between light and dark, creating a more vibrant look.

The sound of silence, or great music

Lexus has tuned the LS's exhaust to convey a more authoritative tone, yet has also designed the cabin for utterly quiet cruising. New sound suppression methods further hush the environment compared to previous LS models. Active Noise Control quiets the cabin by detecting the sound of the engine coming into the vehicle and cancelling certain frequencies, using antiphase sound from the audio speakers.

The serenity of the cabin provides an ideal stage for the standard premium audio system, or the 3D surround-sound Mark Levinson system, featuring in-ceiling array speakers. The package includes a more inviting graphic user interface; its next generation remote touch control is designed to mimic smartphone operation and can also support handwritten input. In addition to a 12.3-inch navigation display, the LS can incorporate an optional 24-inch colour head-up display - the largest in the world - that projects a variety of information into the driver's forward line of vision.

Advanced safety features

The structure of the new LS provides a high degree of passive safety to protect occupants in a collision. The car is also equipped with technologies that may help prevent crashes from happening, or mitigate their effects.

The LS will be equipped Lexus Safety System+ and benefit from world's first intuitive pedestrian detection function with active steering. With this system, if a pedestrian is detected on the road ahead and a collision is imminent, the LS will automatically brake and steer around the person, keeping to its traffic lane. The driver will be alerted by a warning on the colour head-up display.

Lexus CoDrive, a high-level driving support system, is also being introduced on the new LS. This provides steering control in accordance with the driver's intention and continuous driving support on motorways.

Lexus LS outline technical specifications

Vehicle type	Full-size premium luxury saloon
Engine	3.5-litre V6 with direct fuel injection and twin turbochargers
Transmission	10-speed automatic
Output	415bhp/310kW
Torque	600Nm
Wheelbase	3,125mm
Overall length	5,235mm
Height	1,450mm
Width	1,900mm
Wheels	19 or 20-inch

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