2020 ES Builds Upon Seventh-Generation Redesign

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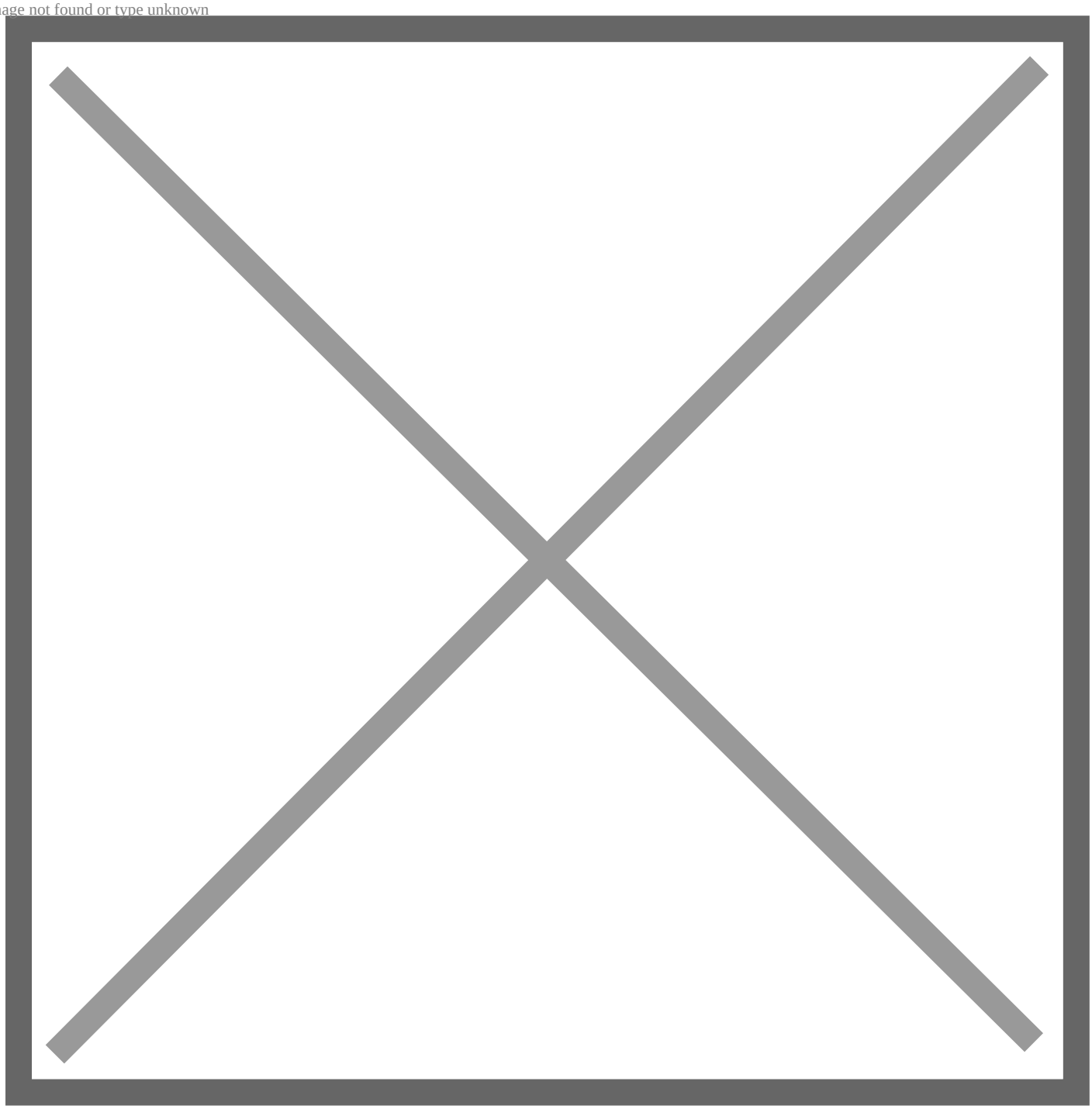


PLANO, TX – After nearly thirty years of success, the seventh-generation Lexus ES unveiled last year looking to redefine its status among entry-level executive sedans. Long known for its unparalleled comfort, refinement and luxury appointments, the 2020 Lexus ES builds on its strengths with a new chassis that allows for a more

dynamic exterior design. The ES lineup also now features an ES F SPORT option.

The 2020 Lexus ES continues the brand's commitment to crafting vehicles with heightened excitement, emotion and passion. Building upon last year's redesign, the 2020 ES will offer updates to the infotainment that include the addition of Android Auto (for 2020 models produced in fall of 2019 or later) and the addition of Blind Spot Monitor w/RCTA as a standalone option.

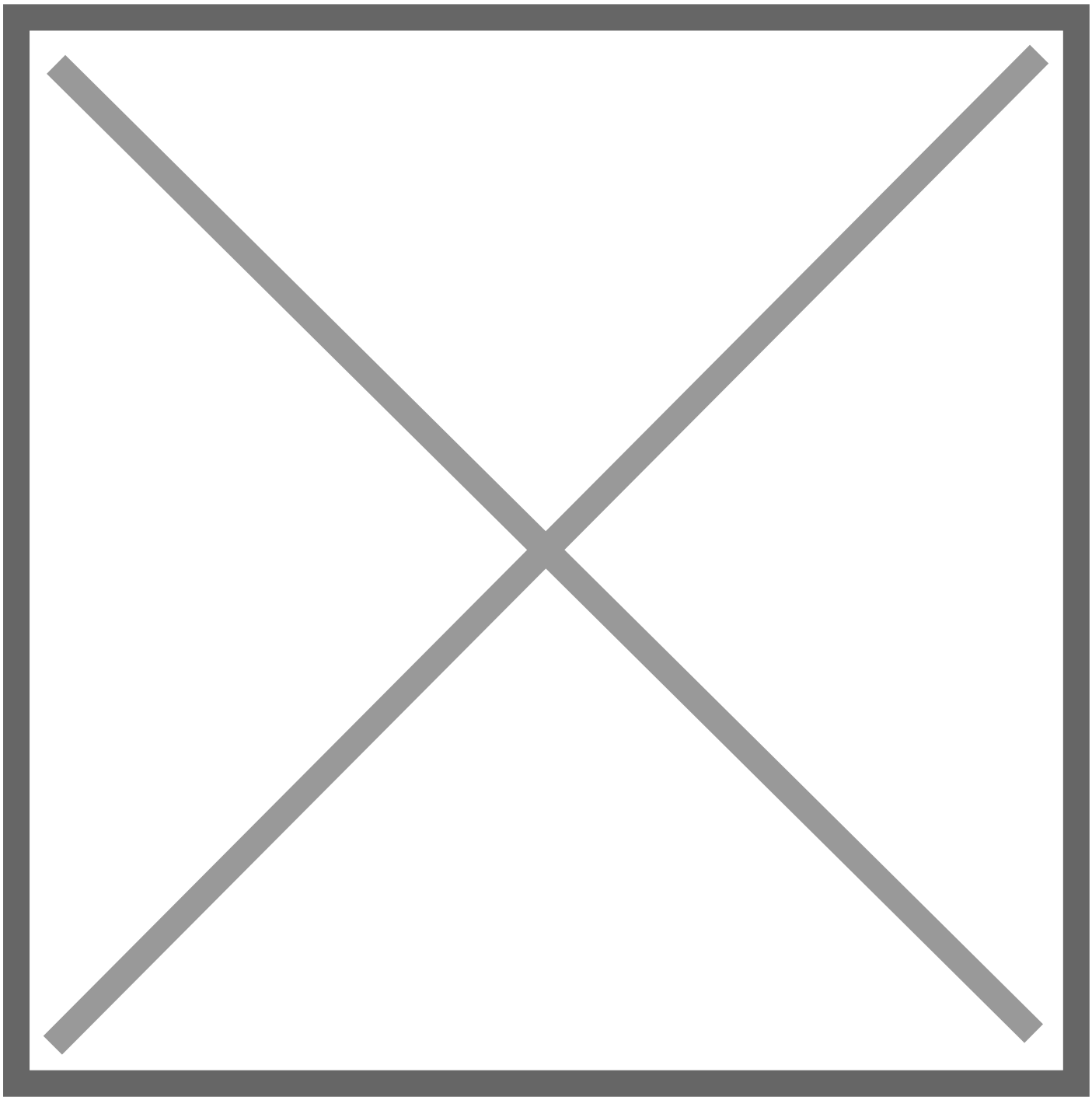
The New Dimension of ES Design

A key element of the redesigned ES is the all-new Global Architecture–K (GA-K) platform. More than just an engineering achievement, the GA-K platform gave the designers the flexibility to create an ES that's as visibly striking as it is enjoyable to drive. The result is an ES sedan that is longer (+2.6 in), lower (-0.2 in) and wider (+1.8 in.) than before with wheels that have been pushed closer to the corners thanks to a two-inch longer wheelbase and wider tracks front (+0.4 in) and rear (+1.5 in). Its stance and proportions reflect its newfound performance capabilities and give the ES the kind of eye-catching appearance that will make owners take a second look as they walk away.

Project Chief Designer, Yasuo Kajino, describes the look of the ES as "provocative elegance". Kajino says:

"The ES has always been an elegant luxury sedan. For this generation, we have added daring design elements that challenge the traditional expectations of buyers."

The provocative elegance of the design starts up front with the latest iteration of the brand's signature grille. It follows the path set forth by the LC coupe and LS flagship, yet adds individual cues that are unique to the ES like the vertical grille pattern and satin plated trim. That theme is repeated at each corner of the bumper to give the ES a wide, planted look that promotes strength and stability.



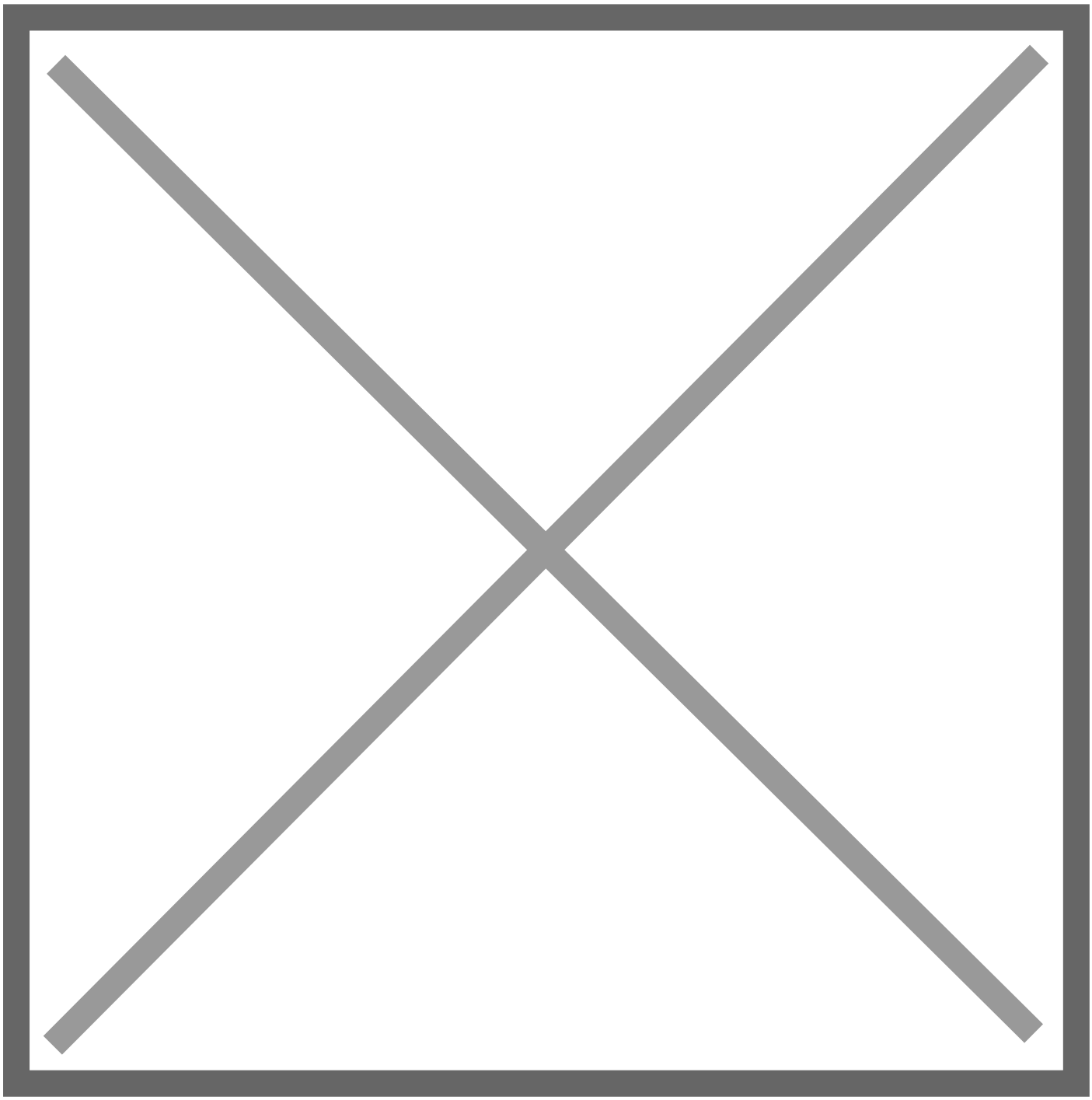
The newly introduced F SPORT model sets out in a different direction entirely, with a grille that borrows directly from the LS flagship. In place of the standard model's vertical bars, the F SPORT has a mesh pattern composed of interlocking "L"s with a jet black finish and dark trim. Cut outs at each corner of the front fascia also sport the black finish mesh, but have even wider openings than the standard model to further emphasize the firmly anchored stance.

To complete the transformation of the front fascia, Kajino's team gave the ES slim headlamps with distinctive "L" shaped marker lights. Optional triple beam headlights further refine the look with three compact LED

projector units while the standard design features a single LED projector beam design that retains the signature “L”-shaped marker lights.

In profile, the ES has a dynamic yet fluid shape that starts with the low hood line made possible by the GA-K platform. From there, the roofline remains low and sleek thanks to the relaxed A-pillar that flows smoothly to the sharply slanted C pillar. A long, uninterrupted shoulder line that extends from the top of the front wheel arch all the way to the corner of the trunk serves as a contrast to the smooth arc of the roofline and gives the ES a refined sense of sportiness.

The rear of the ES is clean and sharply chiseled, with LED taillamps that wrap around the quarter panels to provide a continuous styling line from any angle. The lights feature a distinctive three-dimensional, L-shaped design that gives each cluster an eye-catching depth. Kajino’s team also integrated the side of the vehicle into the rear end by drawing the shoulder and bumper corner lines into the point at the inner edge of each taillight. Finishing off the rear end is a lower valence that highlights the wide stance through the use of chrome exhaust finishers at each corner. On the F SPORT model, a trunk lid spoiler adds a tasteful hint of performance while dark accents along the taillights and lower valance are more subtle indications of its sporting nature.



A wide array of wheel designs adds the finishing touch to the new ES. The standard 17-inch wheel is a split five-spoke design with dark silver accents and a machined finish. A similar color scheme is used for the larger 18-inch 10-spoke wheel available with the Premium and Luxury packages. An additional 18-inch split five-spoke wheel design is available with the Luxury and Ultra Luxury packages that features a multi-spoke design with a high-gloss finish. The F SPORT model gets unique 19-inch wheels that are similar to those used on the LC and LS. The dual-spoke design is highlighted by a dark premium graphite coating that is also unique to the F SPORT.

A dozen colors make up the exterior paint palette including one new shade of green and a new shade of beige designed specifically for the ES. The latter is called Moonbeam Beige Metallic and was designed to mimic golden light reflecting off fresh snow, while the former, Sunlit Green, replicates the color of ocean water brightened by the sun. For the ES F SPORT, there are two exclusive colors available that reflect its high-energy design: Ultra Sonic Blue Mica 2.0 is a vivid color that reflects both bright tones and darker shades depending on the viewing angle while Ultra White is a pure, bright shade of white that contrasts perfectly with the F SPORT's dark trim.

Transformative Performance

The engineering team led by Yasuhiro Sakakibara was tasked with not only improving the performance of the ES, but transforming it. That required turning a sedan known primarily for comfort and quietness into one that is equally capable of delivering dynamic handling.

According to Sakakibara, this ES was built to deliver a fundamentally higher level of performance than any of its predecessors.

"We knew that this ES had to feel responsive and easy to drive, no matter what kind of road it was on and that can only be achieved with a solid foundation."

That foundation is the newly developed GA-K chassis. It's an exceptionally rigid front-wheel drive chassis made from several grades of high-strength steel. The GA-K chassis also incorporates far more structural adhesives than the previous ES chassis as well as the addition of laser screw welds. A total of 785 inches of adhesive is used throughout the structure, more than twice the amount (324 in.) used previously. Laser screw welding, a construction method shared with the LS sedan, is used in 120 locations throughout the GA-K chassis to further solidify the already robust structure. Additional measures are used to improve front-end stiffness including a strut tower brace, multiple reinforcement panels for the strut towers themselves and new radiator support braces.

Building an all-new structure also gave Sakakibara and his team the opportunity to address noise and vibrations at their source. Sound deadening insulation now covers 93% of the floor pan (up from 68%) while underbody covers and front fender liners further reduce road noise. The installation of performance dampeners is used to reduce vibrations on all Ultra Luxury and F SPORT models. The chassis-mounted dampers absorb even the smallest instances of frame compression and/or flex to keep them from generating any resonances that might generate interior cabin noise.

A Suspension That Adapts to Its Surroundings

With a solid base to build upon, Sakakibara's team turned its efforts to designing a suspension that could be tuned to deliver both exceptional comfort and precise handling. The resulting design uses MacPherson struts in front and a trailing arm, multilink setup in back with stabilizer bars at each end.

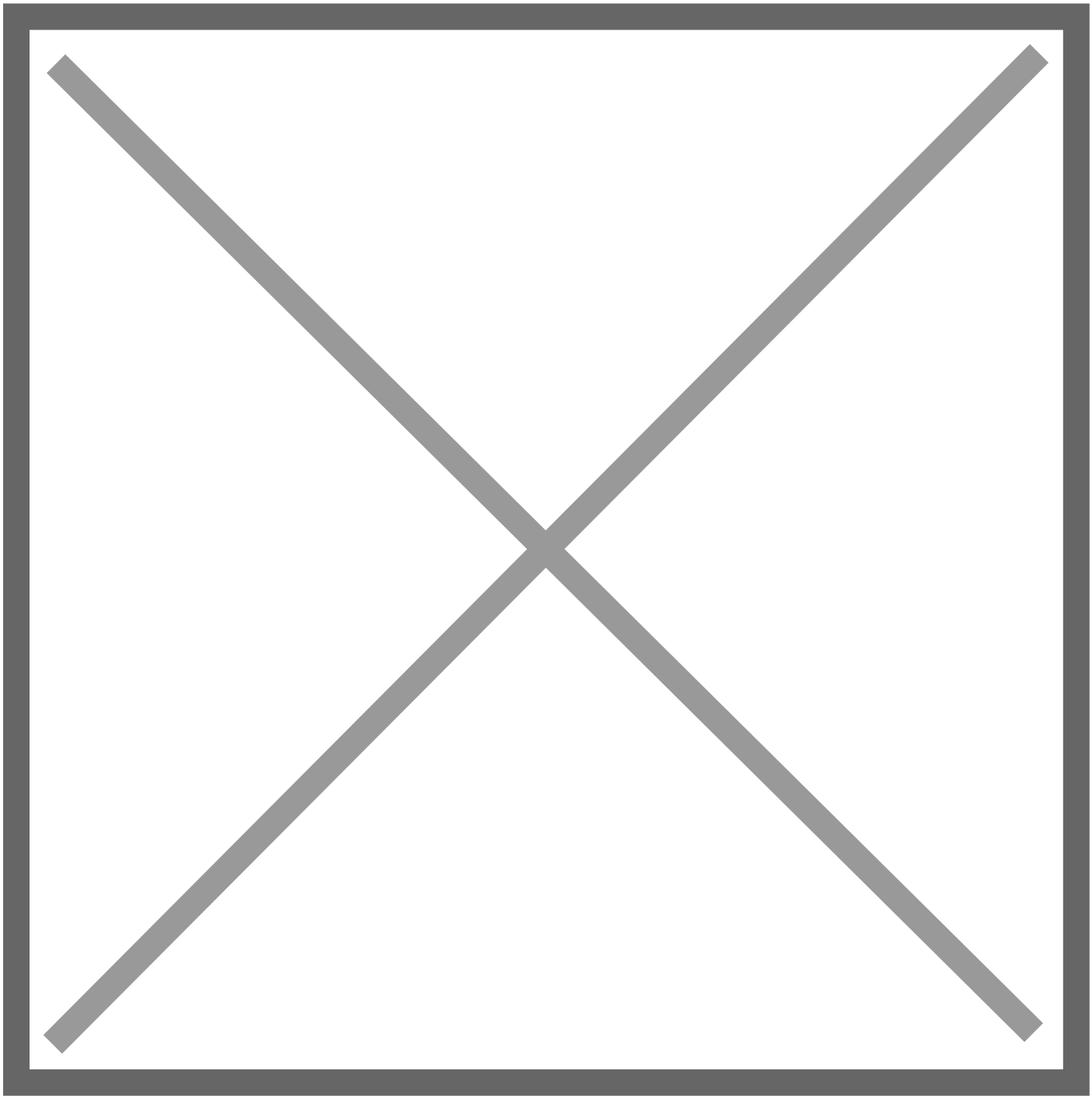
Yoshiaki Ito, chief test driver, describes the ES's heightened level of comfort and refinement by saying:

"We want every kind of driver to feel a sense of complete control when they are behind the wheel of the ES. It's a level of comfort that goes beyond merely delivering a smooth ride."

Although the design of the front suspension is similar to the previous ES, several changes have been made to improve overall responsiveness. The angle of the strut itself has been revised to better align it with the load path from the lower control arm for improved ride quality while an increase in caster angle (+2 degrees) and caster trail (+0.3 in) help to improve straight-line stability. Newly developed Dynamic Control Shocks are capable of responding to even the smallest movements thanks to a non-overlapping auxiliary valve that allows damper oil to

flow in either direction before entering the main valve.

The rear suspension design utilizes a trailing arm, multilink setup that also benefits from the responsiveness of the new Dynamic Control shocks. Higher placement of the trailing arm mounting point and a larger bushing size results in better ability to help dampen road irregularities. Wider spacing of the stabilizer bushing mounts also contributes to overall roll reduction.



A rack-assist type Electric Power Steering (EPS) system is used to deliver a more precise steering feel. Unlike the previous ES which used a steering-column-mounted assist motor, the new EPS setup mounts the assist motor directly on the steering rack which returns more precise feedback to the steering wheel. The new layout also allows for additional adjustability of the steering wheel itself with 1.2-inches of additional tilt and 1.6-inches of additional telescoping range.

The Added Control of F SPORT

On the F Sport model, an Adaptive Variable Suspension (AVS) is offered that replaces the Dynamic Control Shocks with adjustable dampers. Similar to the systems offered on the LC coupe and LS sedan, the AVS system on the ES is capable of 650 levels of adjustment to deliver optimal ride quality and precise control. Adjustments are based on information from sensors that measure both linear and vertical g loads, vehicle speed, steering angle, yaw rate and master cylinder pressure in addition to information from the engine control computer and skid control computer.

All versions of the ES offer a Drive Mode Select system that allows the driver to tailor the car's settings to varying road conditions. Models without AVS offer Eco, Normal and Sport modes while AVS-equipped cars replace Sport mode with Sport S while adding Sport S+ and Custom.

In Eco mode, fuel consumption is prioritized by reducing the engine responses to the throttle and suppressing the use of the climate control system. On non AVS cars, Sport mode quickens throttle responses, changes the transmission shift program and alters the steering assist for added control, while AVS-equipped cars only adjust the throttle and transmission settings when in Sport S mode. For more aggressive driving, Sport S+ mode adjusts the throttle, transmission and steering parameters along with the adaptive dampers. In Custom mode, drivers can choose three engine and transmission programs (Eco, Normal, Sport), two steering and suspension programs (Normal, Sport) and two climate programs (Eco, Normal).

More Power and Efficiency Through Technology

All ES 350s are powered by a 3.5-liter V6 (2GR-FKS) that is designed to deliver effortless acceleration along with impressive efficiency. The latest V6 now features the D-4S fuel injection system which uses high-pressure injectors to deliver fuel directly into the combustion chamber along with a low-pressure system that delivers fuel to the intake ports. Together with the addition of Variable Valve Timing-intelligence Wide (VVTi-W) for the intake valves, the engine is capable of operating on either the traditional Otto cycle during sporty driving or the more efficient Atkinson cycle when power demand is low.

Multiple upgrades to reciprocating parts along with a redline increase from 6,200 rpm to 6,600 rpm results in a total of 302 horsepower at 6,600 rpm and 267 lb-ft of torque at 4,700 rpm. Both numbers are up significantly (+34hp, +19 lb-ft) compared to the previous V6. Fuel efficiency is up, too, with preliminary manufacturer estimates of 22 mpg city, 32 mpg highway and 26 mpg in combined driving.

A More Flexible Transmission for Maximum Drivability and Mileage

To complement the power of the updated V6, an 8-speed Direct Shift automatic transmission is used on all ES 350s. It uses an ultra-thin torque converter and a multi-plate lock up clutch to maintain a direct connection in almost all driving situations. The result is an automatic transmission that has the direct feel of a dual clutch design along with the off-the-line smoothness of a traditional torque converter automatic.

Compared to the previous 6-speed automatic, the 8-speed Direct Shift transmission has a wider range of ratios designed to return improved mileage and more responsive performance. For instance, the first gear ratio in the previous 6-speed was 3.30:1 while the new 8-speed offers a 5.51 first gear. On the high-end, the new 8-speed

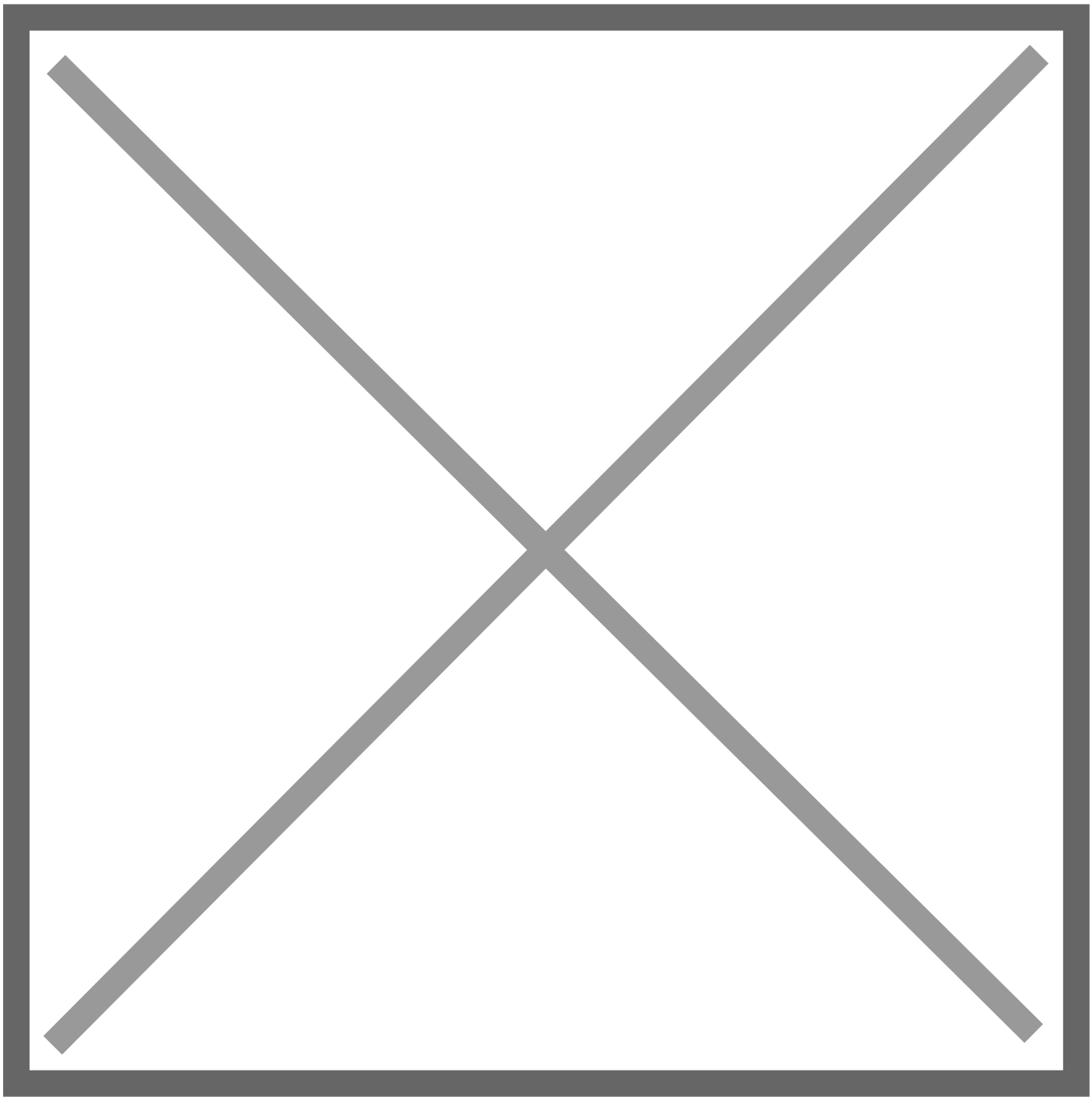
allows the engine to run between 250-300 rpm lower at 60 mph compared to the 6-speed thanks to a taller final drive ratio (2.56) made possible by the more flexible transmission ratios.

Although the transmission's shift programs can be altered through the Drive Mode Select system, it also uses AI Shift Control at all times to align the transmission's shift points with the driver's intentions. By constantly monitoring the vehicle speed and the throttle position, the AI Shift Control system can shift early during relaxing driving or hold gears longer when it contributes to a more engaged and predictable feel. A related system called Direct Connected Downshift allows the transmission to skip gears when large throttle openings are detected such as when making a passing maneuver on the highway.

The Next Generation of Hybrid Drive

The new, fourth-generation Hybrid Drive System introduced in the ES 300h for 2019 returns again for 2020. In addition to delivering stronger performance and exemplary fuel economy, the latest Hybrid Drive System has been designed to help eliminate the rubber band feeling associated with some hybrid systems.

The ES 300h's 2.5-liter, four-cylinder gas engine (A25A-FXS) running on the Atkinson cycle is coupled with a smaller, more power dense electric motor and an all-new hybrid transaxle. The preliminary internal results are a combined 215 total system horsepower and a manufacturer estimated 44 combined mpg.



The new aluminum-intensive gas engine delivers exceptional efficiency by combining a high-speed combustion design with several variable systems designed to conserve energy. The result is an engine that has a nearly identical displacement to its predecessor yet delivers approximately 20 additional horsepower and 12 additional pound feet of torque.

High-speed combustion is a core element of the new engine’s ability to provide the most efficient use of energy. To achieve this, the cylinder bores have been narrowed slightly (3.54 in. to 3.44 in.) and the stroke lengthened (3.86 in. to 4.07) to create an optimal 1:1.2 bore-to-stroke ratio as well as reducing the distance the fuel must

travel to reach the edges of the cylinder. The angle between the valves was also increased to create a more direct path for the incoming air while the intake valve seats use a laser cladding process that allows for a larger valve seat area, reduced seat face temperatures and a smoother transition from the intake port to the combustion chamber. The result is an optimized swirl pattern and the ability to run more ignition advance in lean conditions without approaching knock limits.

A new transaxle was introduced last year and is over an inch (1.2) shorter than its predecessor thanks to a new arrangement of the electric motors that places them in a multi-axle configuration instead of the previous coaxial setup. The traditional planetary gear set has been replaced by a parallel shaft gear and a multi-function gear that incorporates a power split planetary ring gear, parking gear and counter drive gear into one compact unit.

The nickel-metal hydride battery that powers the electric motor has been relocated from the trunk to underneath the back seat. This was made possible by a 4.7-inch reduction in the height of the battery and the adoption of a more compact cooling system. Moving the battery under the seat not only frees up trunk space, it also improves the front-to-rear weight distribution of the ES for better handling.

The ES 300h features a hybrid control system designed to deliver a more linear acceleration feel by aligning engine speed more closely with vehicle speed to reduce the rubber band feel commonly associated with hybrid systems. Engaging the Sport drive mode further enhances acceleration by boosting torque at lower speeds while paddle shifters can be used to move through six simulated gears for more precise control.

Auto Glide Control (AGC) improves efficiency when the car is in the Eco drive mode. AGC is designed to address the situation where drivers misjudge the drag imposed by regenerative brakes as they approach a stop and then move back and forth between the brake and accelerator pedals to compensate. With Auto Glide Control engaged, the ES will enter a “coast” mode when the driver releases the accelerator to allow the ES to slow at a more predictable rate and reduce the inefficiencies associated with repeated accelerator and brake applications.

The Future of Lexus Interiors

All Lexus interiors are designed to blend a driver-centric cockpit with spacious and comfortable areas for the passengers. This concept was introduced in the LC coupe, refined in the LS sedan and now expanded to the ES. Lexus calls this concept “Seat in Control,” a simple idea that says, from the moment you get in, all the controls you need are within reach and all the information you want is in plain view. Armrests slide comfortably under your elbows and buttons can be pushed without taking your hands off the wheel.

In the ES, the idea is taken a step further by placing all the main information displays within the driver’s line of sight. This includes the ultra-sharp LCD instrument panel that features a large analog tachometer, digital speedometer and easy-to-read multi-information display. Standard models use a 7-inch screen while the F-SPORT display measures 8-inches and features a movable center ring similar to the one used in the LC. Hit a button on the steering wheel and the ring slides over to open up more space for the multi-information display on the left side of the screen.

Another means to reduce driver distraction is the optional head-up display that projects relevant vehicle information onto the windshield. Fully adjustable to suit the driver’s preferred parameters, the color display offers the largest viewable area in the luxury class. In addition to basic functionality like speed, fuel level and shift position, the heads-up display is also capable of showing of speed limit signs, lane keeping assist warnings and navigation directions.

If additional information is needed, the Lexus Multimedia System sits high on the dashboard in a position that minimizes distraction. Measuring eight inches wide on standard models and 12.3-inches wide with the available Navigation package, the Electro Multi Vision (EMV) display features crisp, easy-to-read graphics and a revised

menu system. The optional navigation system blends on-board information with cloud-based data for the most accurate directions possible. The updated Remote Touch Interface (RTI) pad now has more usable surface area and vibration feedback to make it easier to use.

A More Comfortable Cabin for All

What the driver sees is also enhanced by what he or she feels, as the driving position on the seventh-generation ES is refined with a more natural steering wheel angle, revised pedal positions and standard 10-way power adjustable front seats. The steering wheel itself is borrowed directly from the LS and features an ergonomically shaped rim and optional wood trim and heating elements. Heated seats are also available for the driver and front passenger along with a new suction-type ventilation system that provides improved cooling in hot weather.

Rear seat passenger comfort has long been a hallmark of the ES and the seventh-generation model builds on that legacy by maintaining its expansive accommodations. Despite the sleek roofline, headroom has been increased slightly through the use of a lower hip point and a carefully configured headliner.

Due to the reconfigured rear suspension, cargo room has been increased over the previous model. The ES now boasts 16.7 cubic feet of trunk space along with additional underfloor side pockets for smaller items. The hybrid model also offers the same cargo dimensions since the battery pack is located underneath the rear seat. An optional hands-free trunk opener has also been added to make loading cargo easier than before. Interior storage has been improved as well with the addition of a more easily accessible dual hinge center console and door bins capable of holding 20oz. drink bottles or a 9.7-inch tablet.

A Luxurious Look and Feel

In addition to the array of eye-catching paint colors available on the exterior of the ES, the interior features three color schemes, four types of trim and three different material options for the seats. The F SPORT model goes one step further with an exclusive Circuit Red color option that adds red seats and door panels for an even more dramatic look.

Along with the standard Striated Black trim, the ES offers three kinds of wood trim: Linear Dark Mocha, Linear Espresso and Matte Bamboo. There’s also an all-new metallic trim that comes standard on the F SPORT model called Hadori Aluminum. Inspired by an ancient sword polishing process, Hadori Aluminum trim has a unique pattern that adds a three-dimensional appearance depending on the viewing angle. The effect is subtle yet indicative of the level of detail and craftsmanship that Kajino’s team put into giving the F-SPORT a unique place in the lineup.

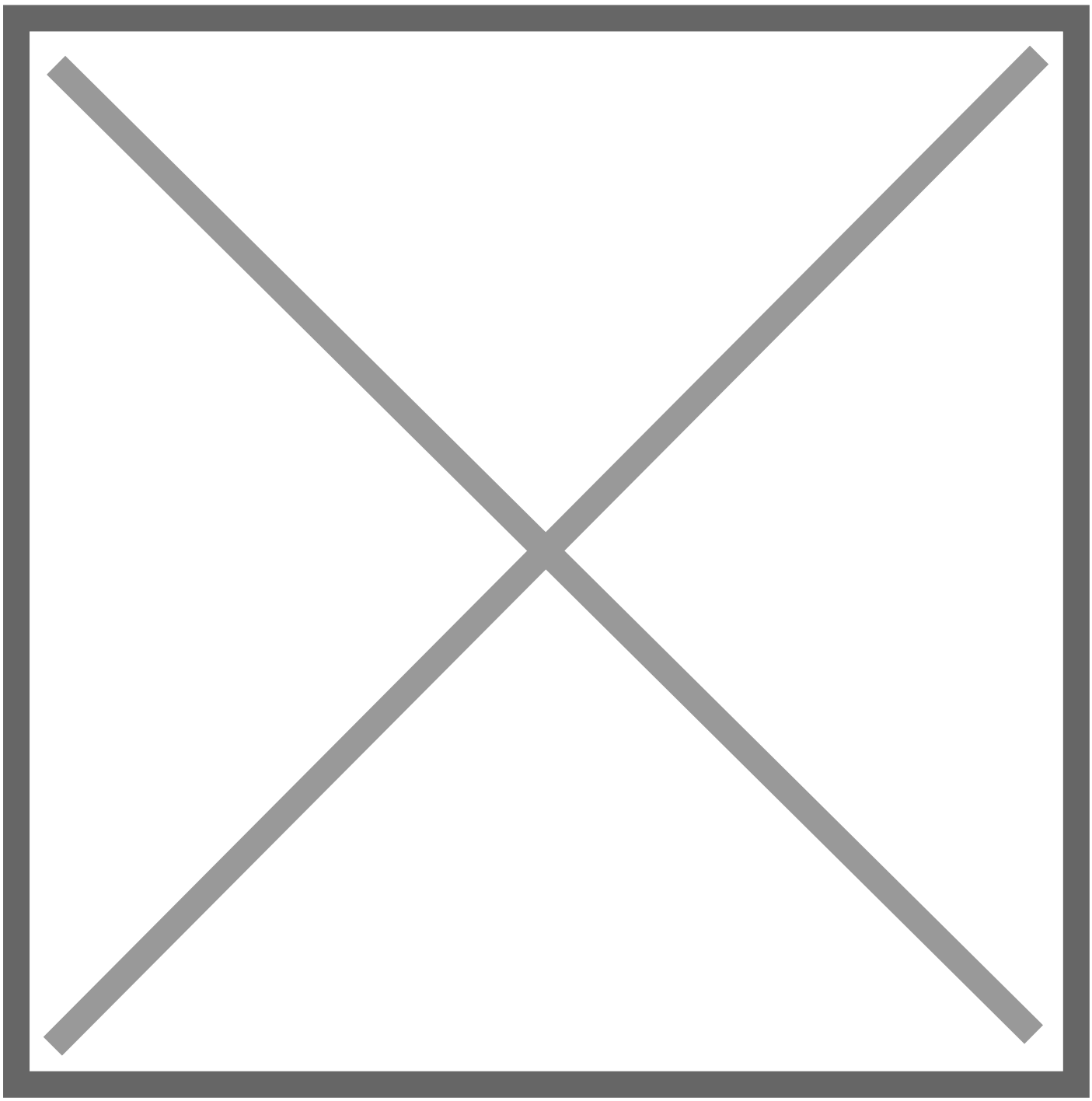
Technology That Connects and Simplifies

Staying connected has never been so important to ES owners, so there are now multiple ways to engage with technology in a safe and convenient manner. Beginning in October of 2019, all 2020 ES models will feature Android Auto compatibility. The ES was the first Lexus product to offer Apple CarPlay™ compatibility, enabling drivers to control their iPhones® through the dashboard display screen or with Siri Eyes Free® voice control.

The ES is also Amazon Alexa® compatible, so drivers with iPhones and Android devices can use natural language commands to control a variety of functions. That functionality includes car-to-home and home-to-car commands, so owners who have Alexa-enabled devices in their home can interact with their ES before they ever get behind the wheel.

A 10-speaker Pioneer audio system comes standard on all models while a 17-speaker Mark Levinson system is available as an option. Along with 1,800 watts of power, the Mark Levinson system also brings Clari-Fi™

technology to the cabin that helps boost the sound quality of low fidelity digital audio sources.



On board Wi-Fi powered by AT&T is also standard on the ES., including a 4GB trial for up to three months. Lexus Enform Safety Connect is offered for first 10 years of ownership with access to Lexus Enform response centers 24/7/365. With Lexus Enform Service Connect — also now complimentary for the first 10 years of ownership — the ES can send alerts for specific factory recommended maintenance, simultaneously alerting a preferred Lexus retailer if opted in. The MyLexusandBeyond mobile app (for iOS devices) or LexusDrivers.com website can be used to set push-reminders and alerts for maintenance and service issues.

With Lexus Enform Remote (offered as a three-year trial), guests can remotely view and control certain aspects of the ES using a mobile app for iOS and Android devices. Functions include remote door lock/unlock; remote start/stop for the engine and climate control; vehicle finder, guest driver monitor and more. Navigation is accompanied by the Lexus Enform Dynamic Navigation with a three-year trial and complimentary Lexus Enform App Suite 2.0.

Unparalleled Safety Comes Standard

One element of the ES that hasn't been radically transformed is its dedication to safety. All versions of the seventh-generation ES feature Lexus Safety System+ 2.0 as standard equipment. Already one of the most sophisticated systems of its kind, LSS+ 2.0 adds new capabilities that further expand the scenarios and the range of speeds in which it is designed to provide additional safety to the driver and passengers.

An example of such a feature is daytime bicyclist detection which is part of an enhanced Pre-Collision System (PCS) that employs both a millimeter wave radar and a monocular camera sensor. Previously designed to detect a preceding vehicle or pedestrian, the Pre-Collision System now has the potential to detect a preceding bicyclist as well. PCS has also been enhanced to help detect a preceding pedestrian in certain low-light situations by increasing the camera's sensitivity and dynamic range.

The previously available Lane Departure Assist (LDA) system remains an integral part of LSS+ 2.0. It's designed to alert the driver when it senses that the vehicle is deviating from its lane with both audible and haptic alerts. It's also capable of providing a certain amount of steering assist to help keep the car from deviating from its marked lane.

A new feature for LSS+ 2.0 is Lane Tracing Assist (LTA). Like the Lane Departure Assist system, the new Lane Tracing Assist system is designed to detect lane markings to determine lane position. If road markings are not detected, LTA is also capable, in certain conditions, of following the car ahead of it when used in conjunction with the All-Speed Range Dynamic Radar Cruise Control (DRCC) system.

An enhanced version of the All-Speed Range Dynamic Radar Cruise Control System uses a more advanced forward radar sensor that is designed to provide smoother acceleration and braking in heavy traffic. Also added is a new Road Sign Assist (RSA) feature designed to read certain road signs and display them on the multi-informational display.

Building on the Future of ES

In 2019, Lexus ushered in a new ES addressing the need to engage a broader range of customers, and the 2020 model builds upon that new foundation by delivering everything that traditional Lexus buyers expect along with elements that will draw in those who haven't considered the brand before. More dynamic styling and performance, unique cabin materials assembled by the finest craftsmen and the latest technology add arguably the best chapter to the ES story.