THE LC SERIES LAUNCH EVENT

THE NEW 2021
LEXUS LC 500 CONVERTIBLE AND LEXUS LC COUPE

PRESS KIT

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INTRODUCTION

The Lexus LC range has all the qualities befitting a flagship range, representing the best in Lexus design, engineering and craftsmanship. Established with the introduction of the LC Coupe in 2017, it has now been extended to include an all-new soft-top model of equal status, the LC 500 Convertible.

The Convertible shares the Coupe's beautiful design and exhilarating dynamic performance, while adding the specific rewards associated with top-down driving. Where the Coupe's focus is an "ultimate beauty" design and performance imbued with the heritage of the Lexus LFA supercar, the Convertible enriches the sensory experience. Driving with the top down makes the driver feel even more closely connected to their car, the road and the world around them.

The LC Coupe – both the LC 500h hybrid and the V8-powered LC 500 - benefits from a series of improvements and innovations for the 2021 model year. These changes are also incorporated, as appropriate, in the Convertible. The result is an evolution in the model's luxury motoring qualities, from its ride, handling and responsiveness to its comfort and multimedia functionality.

EVEN SHARPER, MORE REFINED DRIVING FEEL

Lexus pursues linear operation that is faithful to driver's intentions, such as in the seamless transition from deceleration to steering and acceleration during cornering, in all types of driving situations. In a further evolution of the "even sharper, more refined" philosophy of the LC, the new "Lexus Driving Signature" was born. This will be the new development standard every Lexus model will reflect going forward. This aspect of driving performance was a particular focus in the rigorous vehicle testing programme, resulting in numerous, incremental dynamic improvements. It's this uncompromising attention to detail that has given the new LC models the kind of special performance quality that drivers will enjoy, even in everyday driving situations.

"For the first Lexus soft top, my team was determined to create the world's most seductive convertible,"

TADAO MORI

LC CONVERTIBLE CHIEF DESIGNER

- Preserving the design essence of the LC Coupe with ingenious solutions to accommodate the folding soft top
- Detailed management of aerodynamic elements and air conditioning performance to ensure comfort at all times – top up or down

The LC Convertible's design preserves all the principal lines of the Coupe, while introducing an all-new retracting soft top. Lexus ingenuity has produced a folding mechanism that stows the roof within a very small space without intruding on the load compartment, or compromising the car's elegant styling to the rear of the cabin.

Comfort is assured, roof up or down, with specific adjustment of the air conditioning system, aerodynamic details and the effective suppression of wind flow and noise. Strategic strengthening of the body structure preserves the car's poise and agility, while also providing robust impact protection performance.

DESIGN

- LC Convertible carries forward the award-winning styling of the LC Coupe
- Exterior design is equally impressive, roof up or down
- Lexus' first soft top, engineered for an elegant appearance, durable performance and compact stowage

The mission for the team designing the LC Convertible was simple: create the world's most beautiful open-top car. The statement was straightforward, but the task was a considerable challenge, as Lexus was

determined that the new model should preserve the essential styling motifs of the LC coupe, the winner of multiple international awards for its striking and advanced design. Moreover, the convertible had to look equally impressive with its roof up, or down.

In February 2019, their work was revealed in public for the first time with the unveiling of the LC Convertible Concept, a car created on the theme of "ultimate beauty." Thanks to the determination and skill of the Lexus designers, the production car has kept faithful to the concept's promise.

CREATING THE COUPE ROOF LINE

The line of the roof was key to the designers achieving their goal, as **Chief Designer Tadao Mori** explained: *"Although there are many convertible models out there, few of them are stylish and elegant both when the roof is open and closed. Particularly when the roof is raised, ridge lines in the uneven surface tend to give an unrefined impression. That's why for the LC Convertible, we put maximum effort into realising the same beautiful roof line as the coupe."*

To produce the desired silhouette, the point where the soft top meets the car's rear quarters was moved as far towards the rear of the car as possible, to create a fastback look when the roof is raised. Particular attention was paid to the tensioning of the soft top to ensure a smooth surface, and the frame and other elements are perfectly concealed, so the roof has a clean and elegant, tapered form.

When viewed from the rear, the line of the soft top emphasises the compact proportions of the cabin, contrasting with the wide-flaring under-body and projecting a dynamic look.

PERFECTING THE TONNEAU COVER AND SILHOUETTE

The designers took advantage of the LC's platform specifications and the soft top's folding mechanism to set the tonneau cover as low as possible. They also avoided the familiar flat, platform look seen on many other convertibles by adding fairing-shaped accents that echo the curves of the rear headrests.

It is another common feature of convertibles that the design can seem stretched out from the tonneau cover to the boot lid, particularly when the roof is down. This was avoided on the LC by profiling the rear end so that it rises in a duck tail, producing a distinctive silhouette that is sleek and dynamic. The beltline also kicks up behind the doors to give a sense of the body wrapping around the cabin, creating a tight and clean profile.

SOFT TOP DESIGN AND ENGINEERING

The LC Convertible is Lexus' first soft-top model, and every effort was made to ensure the roof meets its requirements for a sleek and smart appearance, quiet and quick operation and compact stowing that doesn't diminish space in the load compartment.

One of the principal design challenges was to minimise bulkiness in the bodywork in the shoulder area immediately behind the rear seats. This was achieved by creating an extra fold in the soft top so that it can be stowed in the area behind the rear seats, between the left and right-hand rear suspension towers. The hydraulic motor system is also located in this space. As a result, the luggage compartment is similar in size to that of the Coupe – 149 litres.

This clever design also allowed for a sharp and fine character line to be created, running from the front to the rear of the car. To produce this line and achieve a high-quality finish, Lexus applied an incremental forming process, in addition to the conventional press used to mould the aluminium tonneau cover.

A folding roof mechanism is usually expected to last around 10 years before it needs mechanical attention. To meet Lexus' exceptional quality and reliability requirements, the LC Convertible's roof was tested to breaking point. It went through around 18,000 open and closing cycles before a problem occurred – even then only a minor one that was not hazardous. The test programme also verified that the system works just as well in freezing temperatures and snow.

The roof can be raised or lowered in 15 seconds. The task can be done even when the car is on the move, at speeds up to 50 km/h. Once again, thorough testing was undertaken, using a wind tunnel to ensure the system can cope with different speeds and driving conditions, including headwinds.

A quiet cabin free-from outside noise and vibration is an important part of Lexus' *omotenashi* principles of ultimate customer care. The LC Convertible's multi-layered canvas roof is effective in blocking out unwanted noise and its hydraulic motor works quietly and efficiently.

CONTINUITY BETWEEN EXTERIOR AND INTERIOR

In a convertible the cabin is more open to view and closely connected to the car's exterior design. Lexus sought to bring a perfect sense of continuity to the exterior and interior of the LC Convertible by using innovative colour co-ordination.

Three soft top colours are available: Marine Blue (Regatta Edition exclusive, Ochre and Black), the latter two suitable for use with any of the bodywork paint options. With these choices and further options for interior colours, owners have the freedom to specify a car that captures their personal style.

OCHRE

BLACK

MARINE BLUE: REGATTA EDITION EXCLUSIVE

At launch, the LC Convertible is also presented in a Regatta Edition model with a colour scheme that matches Structural Blue bodywork with a white and blue interior and a Marine soft top – a combination inspired by the colours found at a luxury marina. White is used extensively in the cabin, including Lexus' first all-white steering wheel and carpeting. This contrasts with the door trim which is finished with blue synthetic leather. Rather than a printed pattern, this material has a grain that gives a three-dimensional effect with texture and shading.

Co-ordinating the interior A-pillar trim with the colour of the roof lining is a rare quality design feature but one that Lexus applies throughout the LC range. The effect is all the more stylish in the LC Convertible, as the pillars are in clear view whenever the roof is lowered. The colour co-ordination catches the eye and accentuates the luxurious quality of the interior

Special attention has also been paid to the detailing on the seat upholstery, with a unique quilting pattern applied to the shoulder section of the front seats, adding both elegance and tactile quality. Perforations with three different hole diameters are organised in graduated pattern in which they appear to progressively fade away.

UNMISTAKEABLY AN LC

In other respects, the exterior design of the LC Convertible preserves all the powerful, muscular styling and detail that helped earn the Coupe two prestigious EyesOn Design awards.

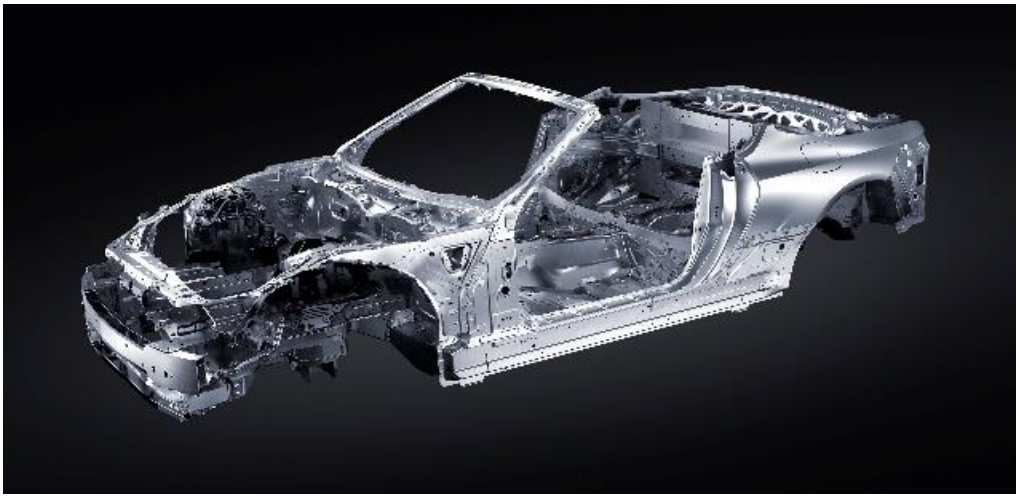
This "avant-garde elegance" can be seen in the large spindle grille – a hallmark of Lexus design – which is finished in chrome and has a mesh design with a visual tension that changes as it spreads across the front of the car. A distinctive lighting signature is created by independent daytime running lights in an arrowhead configuration and ultra-compact triple LED headlamp units. Achieving this remarkably slim headlight design played an important role in helping the designers achieve a low bonnet line and short front overhang.

The prominent front and rear wings flare away from the centre of the car and house wide, large-diameter wheels. The effect is heightened by the door panels being pulled inwards, generating a strong, three-dimensional form that mirrors the spindle shape of the grille.

PERFORMANCE

- Body structure reinforced for impact protection and to minimise vibration and flexing
- Safety features include automatic roll-over bars and extra impact-absorbing material in the front pillars and windscreen header
- Performance from the naturally aspirated V8 engine matches that of the LC Coupe

STRENGTHENED BODY



The body structure of the LC Convertible has been strengthened to further improve safety performance in the event of a collision and to maintain a comfortable drive free from vibration or flexing.

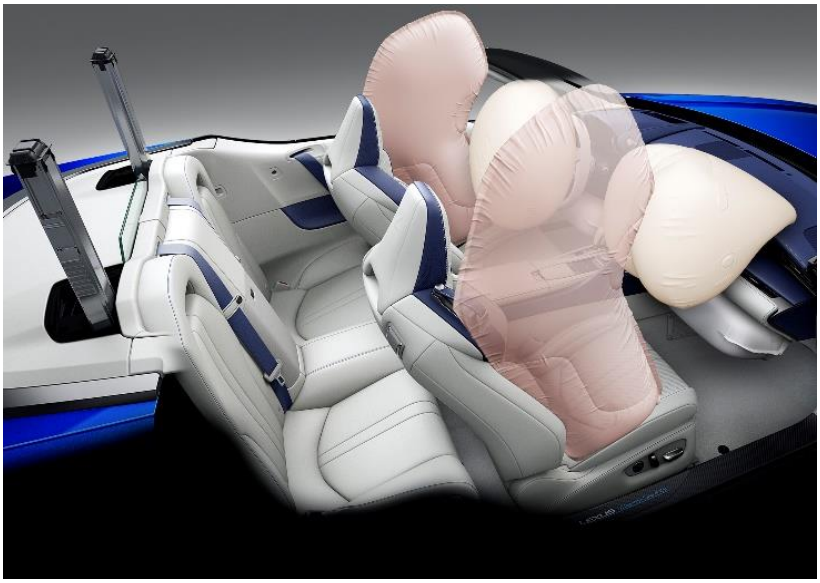
In the upper body, reinforcements have been introduced to disperse impact forces and suppress body deformation around the cabin, using high-tensile and hot-stamped materials that are both strong and lightweight. Gussets have been added at the bottom of the front and centre pillars and the installation of an aluminium alloy torsion box, rear suspension tower brace and V-brace ensures a robust connection between the left and right upper body and the under body, with strong torsional rigidity.

Panel rigidity has been increased with more extensive use of body adhesive and additional spot weld points, minimising vibration and improving handling.

SAFETY PERFORMANCE

The LC Convertible is fitted with an active roll bar system comprising two individual bars that automatically deploy from beneath the rear parcel shelf if a high risk of a roll-over accident is detected.

Further protection in top-down driving is provided by the addition of an impact-absorbing structure in the garnish on the front pillars and the windscreen header trim, reducing impact force to the head in the event of a collision.



SPEED AND BALANCE

Lexus was determined that the Convertible should be every bit as fast as the LC 500 Coupe and used both a wind tunnel and test track to verify the same top speed could be achieved, roof up or roof down. The new body shape has not compromised the car's speed. To verify performance was equal to that of the Coupe, the Convertible was tested both in the wind tunnel and on the test track.

The naturally aspirated 5.0-litre V8 engine and 10-speed Direct Shift automatic transmission have the same specifications as in the LC 500 Coupe (details in the powertrain chapter below). In the Convertible they enable nought to 100 km/h acceleration in 5.0 seconds and a top speed (electronically limited) of 270 km/h.

When it comes to handling, the new roof actually makes a positive contribution to the car's dynamics. With its lightweight structure, it weighs less than the hard top, which helps give the Convertible a lower centre of gravity than the Coupe. This, and the fact that all the roof's components are located within the car's wheelbase, is a key factor in in the Convertible's dynamic balance and driving character. The roof's frame is made from a rare combination of magnesium and aluminium to keep its weight to a minimum without compromising quality or performance.

COMFORT AND AERODYNAMICS

- Airflow management and air conditioning revised to ensure comfort when driving with roof raised or lowered
- Aerodynamic elements suppress wind buffeting, including a wind deflector and optional wind screen

A wind-in-the-hair feeling that gives you a closer connection to the world around you is one of the traditional pleasures of driving a convertible. Combine this with the stirring note of a powerful engine and you have an even more special experience.

Lexus has gone to exceptional lengths in creating the LC Convertible to ensure comfort and quality are never compromised when the roof is lowered. Its aim was to prevent cold air chilling the lower body, while managing temperature and airflow around the upper body so that occupants can enjoy a refreshing breeze without feeling cold or buffeted.

AIR CONDITIONING

The LC's air conditioning system was reconfigured and recalibrated for the Convertible to take into account the change in cabin environment when the roof is stowed.

An open-air control uses a sensor in the roof to detect whether the top is up or down, and adjusts air conditioning performance accordingly. With the top down, the temperature and airflow volume are automatically regulated according to factors such as the amount of sunlight, the outside temperature and the vehicle's speed.

Adjustable heaters built into the headrests direct air onto the occupant's neck, so they feel warm straight away. It is designed to suit people of different heights and works automatically or with manual control, with three heat settings.

Lexus' intelligent Climate Concierge has been adapted specifically for the convertible so that it still delivers optimum performance, co-ordinating control of the automatic air-conditioning, the seat and neck heaters and the heated steering wheel. It recognises when the front passenger seat is unoccupied, automatically switching off the neck and seat heaters to save power. Attention to detail includes a slight increase in the air conditioning's airflow volume, to address issues such as helping keep the back of the driver's hands warm.

AERODYNAMIC DETAILS

Lexus sought the perfect balance between the car's aerodynamic styling and the performance of the cabin's air conditioning. The engineering team took a human-centred approach, true to Lexus' *omotenashi* principles of providing seamless comfort and hospitality.

Researching airflow over the car when the roof is down, they produced a belt line along the side of the car that kicks up at the rear edge of the doors to meet the surface of the boot lid – which itself was set at an optimum height. This detail makes for a smoother airflow that does not buffet the car's occupants.

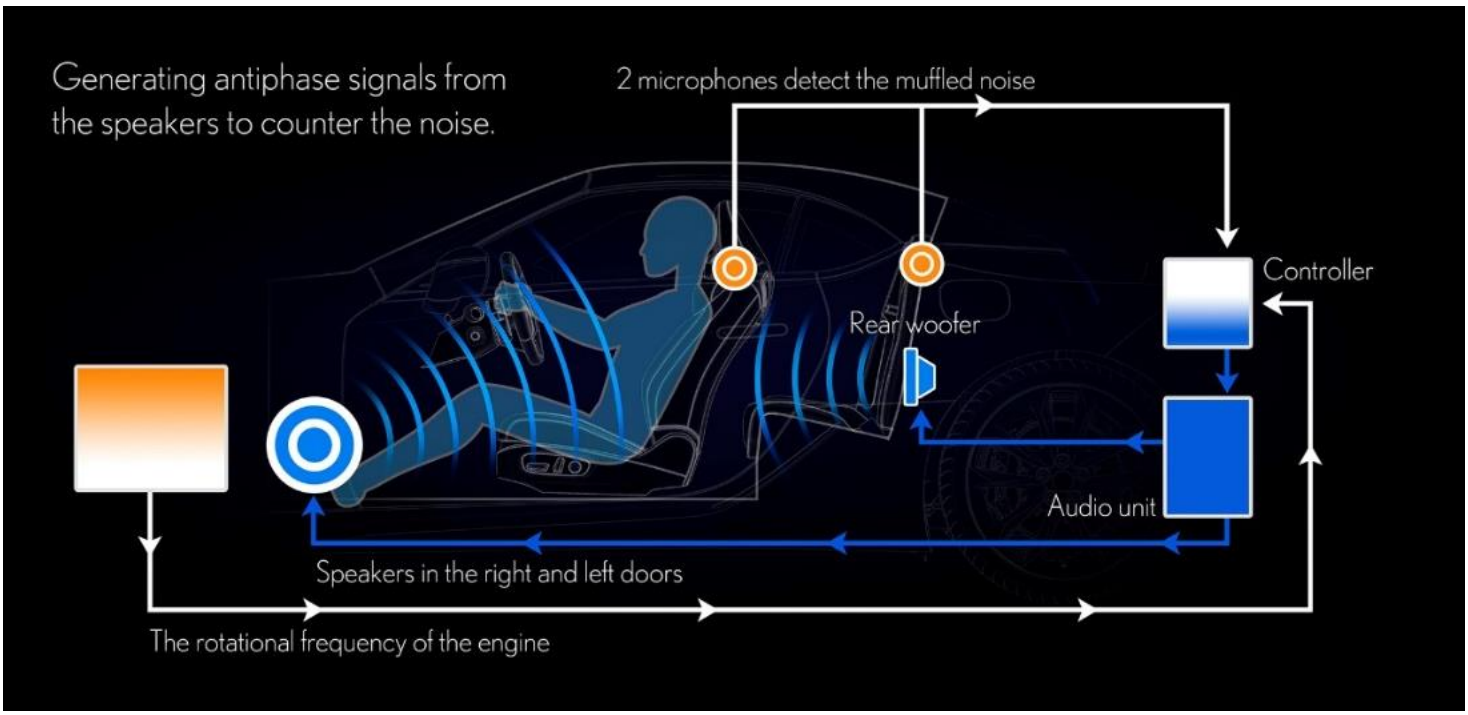
There is also a transparent wind deflector – fitted as standard – behind the rear seats which suppresses unwelcome airflow and keeps things quiet enough in the cabin to hold a conversation without the need to raise one's voice when travelling at speeds up to around 60 km/h. Although small in size, it can reduce airflow around the occupants' faces by about 20%.

For a comfortable ride when travelling at high speed, an optional wind screen is available, which can reduce airflow around the head by about 67% at 100 km/h. This mesh unit sits neatly behind the rear seats and can remain in place when the roof is raised.

Many different mesh patterns were tested before the best-performing option was selected, and attention was paid to the screen's appearance as well as its performance, so that it blends perfectly with the convertible's design.

NOISE MANAGEMENT

- Engine and exhaust notes tuned to heighten the pleasure of top-down driving
- Cabin quietness on a par with the hard-top LC Coupe



The powerful sound produced by the engine and exhaust is a key part of the driving experience in the new Lexus LC Convertible. Great aural quality was an important goal for the car's development team, and one that required precise engineering techniques to achieve.

The ultra-exclusive LFA supercar marks the origin of Lexus' focus on the importance of the engine sound and it was the specialists who worked on its V10 power unit who first identified the separate qualities that come together to create the ideal Lexus sound "atmosphere."

Where the LC Convertible is concerned, the power of the V8 engine's note had to be balanced by a level of cabin quietness that overturns preconceptions about driving in a convertible – an equation Lexus calls a "harmony of opposites." To achieve the right effect, the sound of the engine changes in line with the rise and fall in its rpm, becoming more powerful and urgent in tune with the driver's use of the accelerator and the sequence of shifts through the rapid-action 10-speed Direct Shift automatic transmission. The exhaust note, too, heightens the sensation. By contrast, in gentle cruising, the sound is subdued, so conversation is easy when the roof is down.

CREATING THE IDEAL ENGINE NOTE

A continuous, pulsating sound is characteristic of a large-capacity, naturally aspirated V8 engine like the five-litre unit which powers the LC 500 Convertible. Lexus has applied acoustic technologies to combine this with spectral harmony (perfect sound intervals that are pleasing to the ear), stereophonic sound, to create a depth of sound, and formants – acoustic qualities that stir the senses and generate a feel-good factor.

Active Noise Control is used to "clean" the sound frequencies experienced in the car. This emits anti-pulse sounds through the audio speakers which counteract any unwelcome low frequency booming sound from the engine and drivetrain.

In the LC Coupe, noise inside the cabin is monitored by a microphone in the roof, but for the Convertible, this had to be relocated inside the driver's headrest. Being closer to the driver's ear means it can pick up a wider range of frequencies, but a complex algorithm had to be calculated to make sure it works accurately in any seat position.

CABIN QUIETNESS

Even though the LC Convertible has a soft top, Lexus wanted to secure the same kind of cabin quietness as in the Coupe when the roof is raised. Acoustic simulations were produced to determine where dominant noises were entering the space, so that the amount and location of soundproofing and sound-absorbing material could be calculated.

The storage area behind the rear seats for the folding roof presented a particular challenge as it was a route for tyre and exhaust noise to enter the cabin. There was not enough room for soundproofing material to be added, so the team looked instead at adapting the trim material itself. By allowing air to pass through the structure and using sound-absorbing material on the reverse, the entire surface of the storage space soaks up noise.

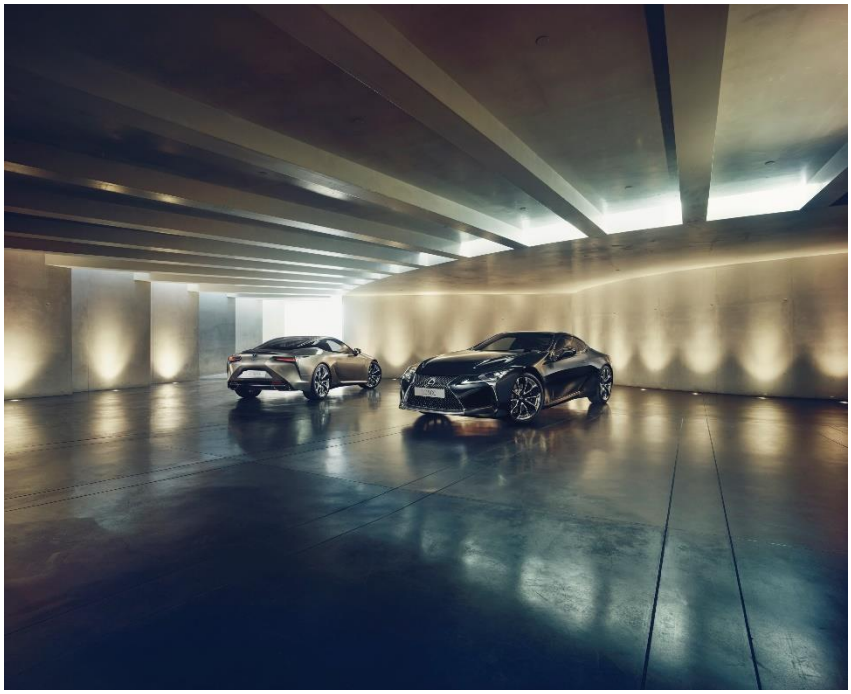
As the area is visible and part of the car's interior, it also had to look good. Lexus assessed many different materials before choosing one usually used for lining the wings around the wheels. This meets safety standards and, being applied with extra density, has just the right appearance.

2021 UPDATES FOR THE LEXUS LC COUPE

- Comfort, ride and handling improvements with suspension revisions, weight-saving measures and shock absorber adjustments
- Performance improved with changes to the LC 500h's Multi Stage Hybrid System and high-voltage hybrid battery
- Improved shift pattern for the LC 500's 10-speed Direct Shift automatic transmission
- Multimedia system gains smartphone integration functions with Apple CarPlay® and Android Auto®

"For me, the LC 500h luxury coupé is all about the emotions. It features some of the most advanced automotive technologies ever created, including Lexus Multi Stage Hybrid System and Lexus Safety System +, yet it's not the world-firsts that thrill me. It is watching people fall in love with the LC the first time they drive it."

KOJI SATO
LC CHIEF ENGINEER



The Lexus' flagship coupe has always aimed to provide "even sharper, more refined" performance. Changes introduced for the 2021 model year (and shared with the new LC 500 Convertible) deliver greater responsiveness, handling stability and agility, strengthening the driver's feeling of being directly connected to the car.

To achieve its goals, Lexus has revised the suspension system, saving weight and improving ride and handling quality. Changes to the high-voltage hybrid battery control have produced more useful power and torque in the LC 500h, and adjustments have improved performance of the LC 500's 10-speed automatic transmission. The steering has also been revised and the brakes tuned to communicate a better feel to the driver.

DRIVING DYNAMICS

Changes to the LC Coupe's suspension system deliver greater responsiveness, handling stability and agility, strengthening the driver's feeling of being directly connected to the car and delivering an exhilarating driving experience.

A focus on weight saving has seen unsprung mass reduced by almost 10 kg. This has been accomplished principally with changes to the suspension, including the use of aluminium lower arms, lighter, hollow anti-roll bars with a revised diameter and a new high-strength material for the coil springs.

Once the weight savings were secured, attention turned to updating the suspension for a smooth, softer stroke, giving the driver a stronger feel of the road. The electronic front shock absorber controls have been adjusted to give a longer stroke, and bound stopper rigidity has been optimised to help create a smoother suspension stroke overall. Rear anti-roll bar rigidity has been increased to improve front turn-in performance and provide more linear steering input, again helping make the driver feel more connected to the road.

BRAKES AND STEERING

Larger brake pads with a higher friction coefficient have been adopted to gain more effective performance and stability at high temperatures and speeds. The system continues to use front and rear ventilated discs with opposed six-piston aluminium monobloc callipers at the front and four-piston units at the rear. The black callipers are decorated with the Lexus logo in white.

In a detailed touch, even the surface of the brake pedal has been revised to provide a larger contact area, giving a more natural feel for the driver.

Adding reinforcements and bracing has increased the steering support rigidity, helping achieve better handling stability. The measures include reinforcement of the instrument panel and a higher-rigidity surface for the upper and lower steering support joints, plus changes to the bracing for the driver's seat and cowl. Software updates for the Variable Gear Ratio Steering, Dynamic Rear Steering and the electric power steering have further sharpened responsiveness.

ACTIVE CORNERING ASSIST

For better vehicle control in mid to high-speed ranges, the LC's Vehicle Stability Control (VSC) has a new Active Cornering Assist (ACA) function. This helps control cornering by providing braking to the inner wheels in line with lateral vehicle acceleration experienced when higher G forces are generated in spirited driving (further details in the Chassis Dynamics section below).

POWERTRAINS

- LC 500h Coupe powered by 3.5-litre V6 self-charging full hybrid powertrain
- First model to benefit from Lexus' Multi Stage Hybrid System
- LC 500 Coupe and Convertible feature 5.0-litre V8 engine, matched to Direct Shift 10-speed automatic transmission

LC 500h WITH MULTI STAGE HYBRID SYSTEM

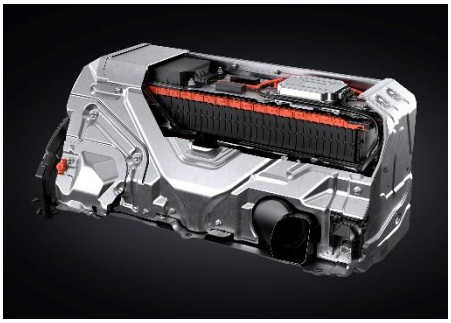
The LC 500h Coupe's self-charging full hybrid powertrain features a 299 DIN hp/220 kW 3.5-litre V6 engine and Lexus' revolutionary Multi Stage Hybrid System. Total system output is 359 DIN hp/264 kW.

The Multi Stage Hybrid System, which debuted on the LC Coupe, is one of the most significant technical advances yet developed by Lexus. It overturns the traditional "eco" perception of hybrid powertrains to deliver authentic high performance, unlike anything seen before. In essence, the system uses a multi stage shift device to amplify engine and electric motor output in four stages, making use of

the full range of engine speeds. This gives more direct response to driver inputs and a higher level of dynamic performance and driving pleasure.

Lexus has increased maximum engine speed from 6,000 to 6,500 rpm, while the nought to 100 km/h acceleration time remains at 5.0 seconds. Changes to the Multi Stage Hybrid System's shift logic have produced smoother and more linear response, and also sharpened performance through bends with an automatic downshift to second gear when accelerating out of a turn.

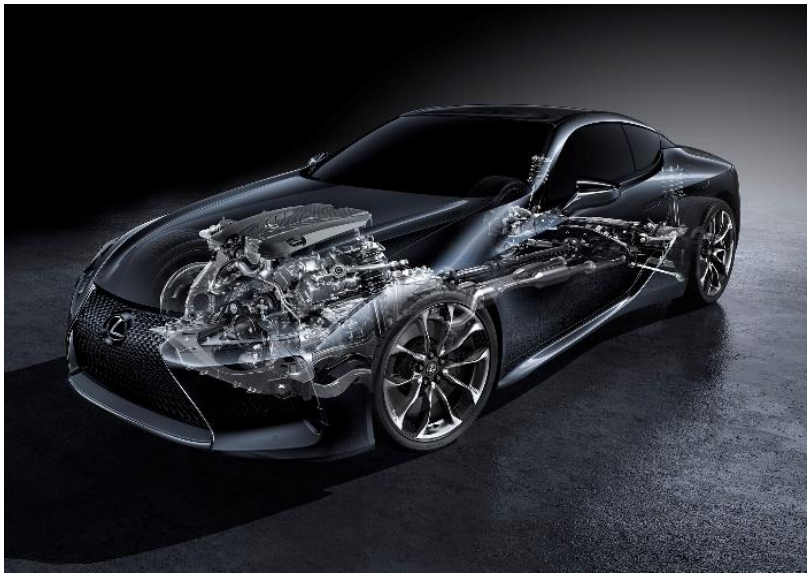
PERFORMANCE BENEFITS FROM HYBRID BATTERY CONTROL



The LC 500h Coupe benefits from a new control programme in its high-voltage lithium-ion hybrid battery that increases its operating range and the degree of assistance provided to the electric motor. This helps provide more powerful acceleration, both when negotiating urban streets, or driving on winding roads. For example, extra power and torque are delivered sooner as the vehicle accelerates from 50 to 80 km/h, even with moderate, 30% pressure on the accelerator pedal.

LC 500 WITH 5.0-LITRE V8 ENGINE

(ALSO FEATURED IN LC 500 CONVERTIBLE)



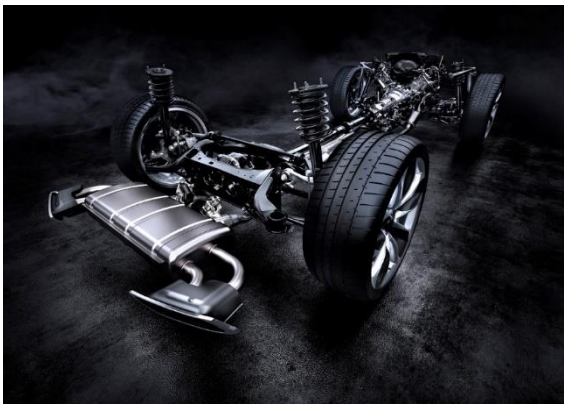
The performance heart of the LC 500 Coupe and Convertible is Lexus' high-revving (maximum 7,300 rpm), naturally aspirated 5.0-litre V8 petrol engine. This Atkinson cycle unit is supported by advanced D-4S fuel injection technology and its power is delivered to the rear wheels via a 10-speed close-ratio automatic transmission.

The V8 provides smooth, linear acceleration and generates a stirring engine note. Maximum power of 464 DIN hp/341 kW is delivered at 7,100 rpm, with maximum torque of 530 Nm available at 4,800 rpm. Acceleration from rest to 100 km/h can be accomplished in 4.7 seconds in the Coupe.

The engine is designed for durability and has a lightweight construction, with high-strength, forged connecting rods and titanium valves that allow it to flourish at high revs. A dual intake inlet enables efficient breathing and contributes to the engine's distinctive sound. Noise

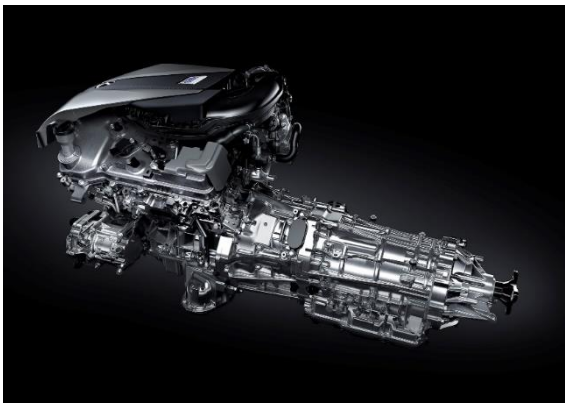
and vibration have been reduced by the fitting a double torsional damper on the crank pulley, while fuel efficiency is supported by the use of D-4S direct fuel injection, Atkinson cycle operation, optimised VVT-i intelligent valve timing and a high (12.3:1) compression ratio. Extensive measures have also been taken to reduce friction and pumping losses.

V8 SOUND QUALITY



The sound generated by the LC 500's V8 powertrain is all part of the quality of the driving experience. Lexus has changed the location of the valve that determines the route of the exhaust gases in the main silencer to achieve the ideal note. This makes its presence felt at start-up and at high engine revs (from around 4,000 rpm), while performance is quiet when cruising.

TRANSMISSION



Lexus has used big data to improve the drive force characteristics of the LC 500's (Coupe and Convertible) 10-speed Direct Shift automatic transmission, to achieve even more faithful responses to the driver's intentions. With more drive force generated as engine speed increases, the driver feels a real sense of powerful torque and continuous acceleration.

The focus was the "active zone" – the 50 to 70% throttle range that accounts for most driving – with the transmission allowing revs to rise higher before shifting into the next gear. The effect is enhanced by the rising note of the V8 engine.

In the LC 500h the Multi Stage Hybrid System's shift logic has been adjusted to provide even smoother and more linear response. The changes improve performance when accelerating out of a bend, with an automatic downshift to second gear instead of third.

MULTIMEDIA

For the 2021 model year, all LC models are equipped as standard with Apple CarPlay® and Android Auto®, allowing for easy, wireless smartphone integration and access to popular apps for navigation, entertainment and messaging. With Android Auto, the Google Assistant can be used and tailored information can be sourced based on the user's calendar, previous activity and established preferences.

Apple CarPlay allows users to access the familiar interface from their iPhone® through the vehicle's multimedia display. An iPhone can be connected to obtain journey directions, make calls, send and receive message via Siri®, and gain access to apps such as Spotify, Audible and Apple podcasts.

LEXUS LC SERIES FAMILY FEATURES

The following sections cover the established features of the Lexus LC series, including design, powertrains, chassis dynamics, craftsmanship, safety and audio systems.

DESIGN

- Distinctive LC design based on award-winning LF-LC Concept car
- Fluid interpretation of Lexus's "seduction and technology" design theme
- Luxury 2+2 coupe proportions, with authentic front engine/rear-wheel drive design characterised by low bonnet and roof lines and aerodynamically efficient surfacing

EXTERIOR DESIGN

The LC Coupe's exterior design is immediately recognisable as being a faithful reinterpretation of the styling of the LF-LC concept, winner of an EyesOn Design Award when first revealed at the 2012 North American International Auto Show in Detroit.

Making the show car's styling a practical proposition for a full production car required a new way of working at Lexus, bringing the engineering and design teams together with an unprecedented degree of co-operation to achieve the desired results. The success of this teamwork was rewarded when the LC won two further EyesOn Design honours when it in turn was revealed at the 2016 Detroit motor show.

The LC has luxury coupe proportions with an exterior design that projects an avant-garde elegance, remaining faithful to many of the defining features of the LF-LC concept car that inspired it.

The car's athletic profile is characterised by its sweeping roofline, which tapers rearwards from above the centrally positioned cabin to create a distinctive silhouette. Chrome-plated mouldings along the side of the glass roof amplify the elegant shape, their rear edges shaped to echo the lines of a traditional Japanese sword. The blacked-out finish to the roof and rear pillars creates a floating effect that visually separates the roof from the rear spoiler.

The sporting appearance can be heightened with an optional CFRP composite roof and an active rear spoiler.

The LC Coupe has a 2,870 mm wheelbase, very compact overhangs (930 mm front, 970 mm rear) and a notably low bonnet line. Overall length is 4,770 mm, width is 1,920 mm and the height 1,345 mm. The prominent front and rear wings flare away from the centre of the car, housing wide, large-diameter wheels, while the door panels are pulled inwards, creating a powerful three-dimensional form that mirrors the spindle shape of the Lexus grille.

The LC is available with a choice of 20-inch cast aluminium or optional 21-inch forged aluminium alloy wheels.

FRONTAL DESIGN

The spindle grille is finished in chrome and has a mesh design with a visual tension that changes as it spreads across the front of the car. The unique LC lighting signature is created by independent daytime running lights in an arrowhead configuration and ultra-compact triple LED headlamp units. Achieving this remarkably slim headlight design played an important role in helping the designers achieve the coupe's low bonnet line and short front overhang.

REAR STYLING

At the rear the roof tapers down between muscular wheel arches, reinforcing the car's wide and stable stance. The Lexus spindle shape is visible here in a three-dimensional form that is generated by lines flowing from the front of the car and along the sides, before cutting back around the inner edge of the rear combination lamps. The line of the spindle then moves outwards, following the shape of the licence plate mounting and outer edges of the tailpipes.

The rear combination lamps, set vertically at the outermost edge of the bumper, have a graphic that accentuates the flow along the sides of the body and emphasises the vehicle's strong, planted look.

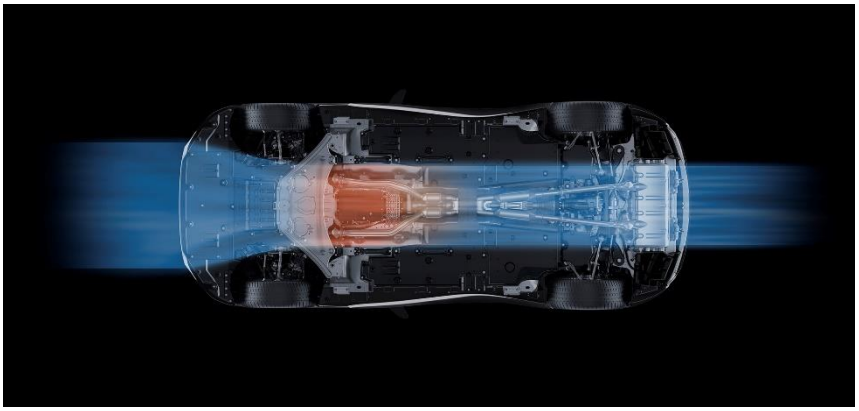
AERODYNAMICS

Lexus worked to introduce a high level of aerodynamic performance to improve the coupe's handling stability and ride quality and to suppress wind noise. The aim was to achieve a smooth, unbroken front to rear airflow, both over and beneath the body. Design elements that help control and direct the airflow include small but critical aero stabilising fins on the front pillars, just forward of the door mirrors.

The optional active rear spoiler is automatically deployed when vehicle speed rises above 80 km/h. This suppresses lift at the rear to give a high degree of stability when driving at speed.

Aero ducts are featured just forward of the rear wheel arches. These feed air into the wheel arch, which then exits smoothly across the sidewall of the tyre. This contributes to the car's high-speed straight-line stability and steering responsiveness. It also generates improved grip feel from the rear tyres.

The treatment of the underbody has been given equally close attention, with an almost completely smooth finish. Parts are aligned with the aero line, which kicks up towards the rear – notably the silencer is angled upwards, like a diffuser.



INTERIOR DESIGN

The LC's 2+2 cabin combines elegance, superb comfort, sophistication and intricate attention to detail with a driver-focused cockpit. The area around the front passenger spreads outwards to create a comfortable and welcoming space. The line of the door

trim is an extension of an exterior line that flows from the bonnet and through the windscreen, building a sense of continuity between the outside and inside of the car.

The driver's cockpit is designed to instil confidence with intuitive layout of the controls and an excellent seating position. The driver's hip point has been located as close as possible to the car's centre of gravity, maximising direct feedback of the vehicle's dynamic behaviour. The driver also has a clear view of the road, uncompromised by the seating position thanks to the low bonnet line, the low-profile instrument panel and the location and narrow width of the front pillars.

EASE OF ACCESS

Lexus has ensured getting in and out of the LC is easy and comfortable by providing generous legroom beneath the instrument panel, reducing the height difference between the rocker panel and the vehicle floor and enlarging the door aperture to provide comfortable head space.

STEERING WHEEL AND CONTROLS

Particular attention has been paid to the steering wheel design, with a change in the cross-section around its circumference to allow for variations in grip and twisting of the wrist. New, larger magnesium alloy paddle shifts have been profiled for easier hooking with the fingertips and have a positive and satisfying click action.

The information displays are arranged in order of importance, with the most critical positioned closest to the driver's sightline, within the dashboard's upper display zone. All are positioned at the same height, to reduce the degree of eye movement required for the driver to read them. The instrument binnacle features the latest development of the TFT (thin film transistor) meter technology introduced in the Lexus LFA supercar, including a moving central ring.

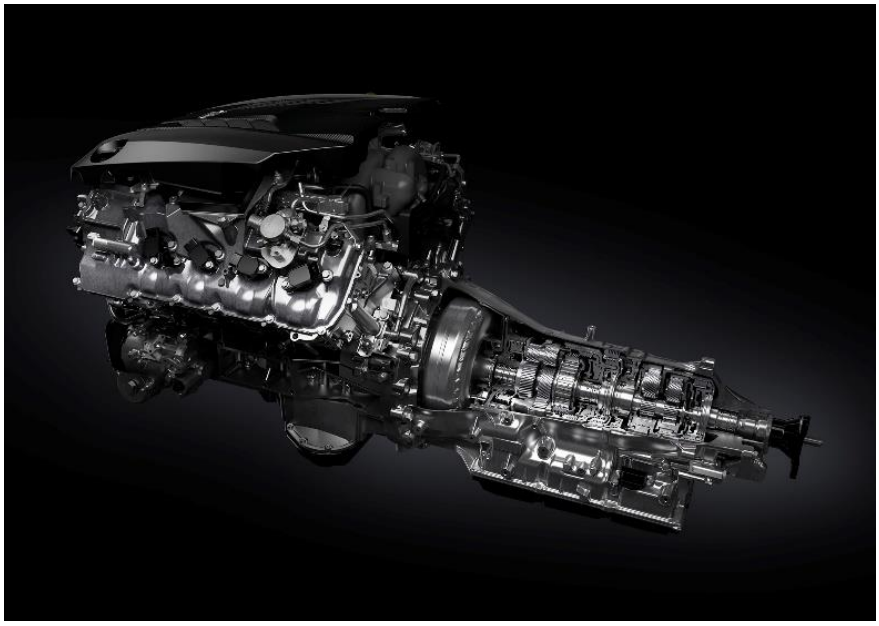
Driving-related switches and controls are arrayed in a control zone that is concentrated immediately around the steering wheel. These include the paddle shifts, steering wheel combination switches, Drive Mode Select switch, starter button and shift lever, each located for the best ergonomic performance, focusing on easy reach and operation that allow the driver to concentrate on the road ahead with least distraction.

Throughout the cabin, the quality and finish of the upholstery, trim materials and detailing reflect the *takumi* craftsmanship and fine attention to detail for which Lexus is renowned worldwide. These are witnessed in the hand-stitching of the leather gearshift lever, the draping treatment of the Alcantara door panel trims and the discreet use of the Lexus L motif.

SEAT DESIGN

Providing the driver with a seat with the best possible combination of support and comfort was a focus point in the development of the LC's cabin. The aim was to deliver an advanced design with excellent holding performance and superb comfort. Lexus has achieved this with a new two-part construction technique in which the main part of the seatback drapes over the shoulder area of the seat and wraps around the back. To ensure superior lateral support, additional bolstering is provided for the driver's shoulder blade area; resin inserts improve the holding performance of the side bolsters. On the Coupe's optional sports seats, the bolsters are even more substantial, with a focus on keeping the driver's back in place during high-speed cornering.

DIRECT SHIFT 10-SPEED AUTOMATIC TRANSMISSION



The Direct Shift automatic transmission was designed for the LC 500, a 10-speed unit with close ratios and even spacing between each gear – a Lexus world-first for a passenger car.

An extra gear was added to eliminate the feel of second and third gears being drawn out for too long, and a 10th gear allows for efficient high-speed cruising at lower engine rpm. The system provides some of the world's quickest shifts, giving a crisp feel, fast response, rhythmic shifting with no "shock" effect and a harmonised engine sound.

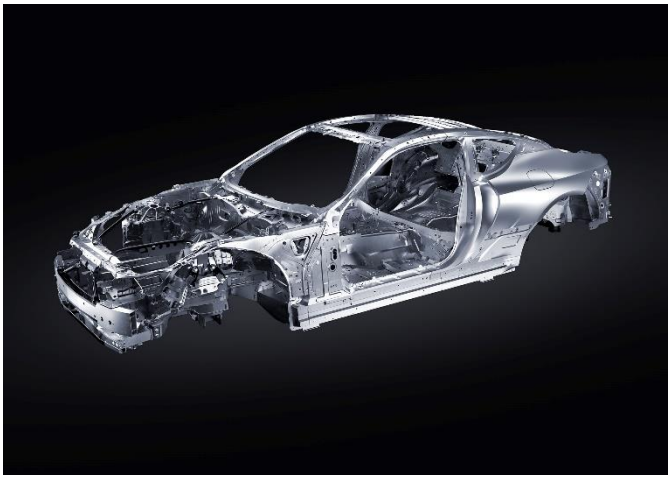
In another world-first for Lexus, the transmission uses an AI-SHIFT control with a drive mode switching function. This selects the optimum gear according to its estimation of the driver's preferences and intentions, based not just on vehicle speed and use of the accelerator, but also from past driving history.

CHASSIS DYNAMICS

- LC Coupe and Convertible constructed on Lexus' GA-L front engine/rear-wheel drive platform
- Low centre of gravity and superb body rigidity
- Multi-link front and rear suspension
- Lexus Dynamic Handling and limited-slip differential

GLOBAL ARCHITECTURE – LUXURY PLATFORM

The quality of the GA-L platform allowed Lexus to craft a highly rigid body with excellent noise and vibration characteristics. It plays a pivotal role in the LC's dynamic performance, giving the car a low centre of gravity and enabling the design of a new driving position. Control of vehicle mass, ideal weight distribution and new multi-link suspension systems add to the platform's essential qualities.

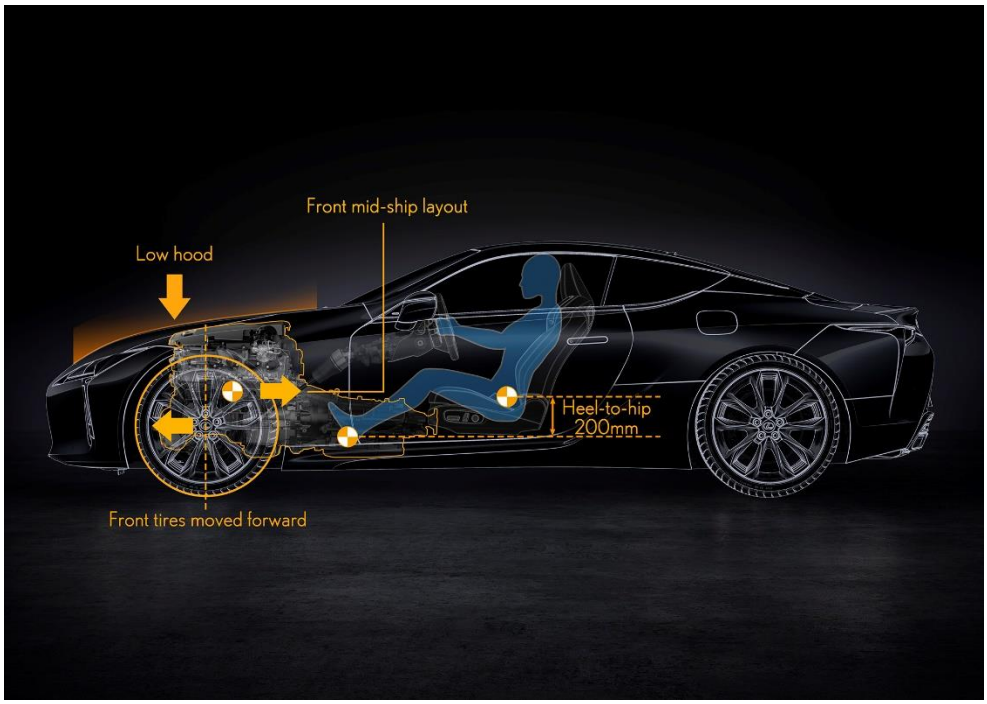


HIGH BODY RIGIDITY

Exceptional body rigidity and careful management of the car's inertia specifications have delivered just the kind of engaging driving dynamics Lexus sought for its flagship coupe. To gain the best results, materials with different properties have been used in different areas, giving strength, rigidity and light weight in the appropriate measure and in the right place.

To create a strong frame, the non-deforming parts are made of ultra-high-tensile strength steel, while high-tensile steel with good elastic properties is adopted for elements that are designed to deform in an impact. The rigidity of the frame is supported by general steel with a high degree of stiffness, and aluminium is used strategically for its energy-absorbing performance and for external bodywork where its lightness and tensile rigidity are of value. Finally, strong yet lightweight Carbon Fibre Reinforced Plastic (CFRP) is featured inside and out.

INERTIA SPECIFICATIONS



Precise control of the LC's inertia specifications played an important part in securing the essential "even sharper, more refined" quality. This included giving the car a low centre of gravity, balanced front-to-rear weight distribution and a good moment of inertia. The GA-L platform allowed the packaging to be reconsidered, to improve the inertia specifications and achieve the best combination of handling stability and ride comfort. Measures included moving the tyres outwards to the corners of the vehicle, reducing overall weight, lowering the driver's hip point and moving the engine 50 mm rearwards. The removal of the spare tyre in favour of run-flat tyres and relocation of the battery to the luggage compartment further helped balance the car's weight distribution

By achieving a low centre of gravity, Lexus was able to reduce the roll angle without stiffening the springs and detracting from ride comfort. Overall, the LC displays controlled body motion and precise, linear response, creating a rhythmical and smooth driving experience, notably when cornering and making lane changes.

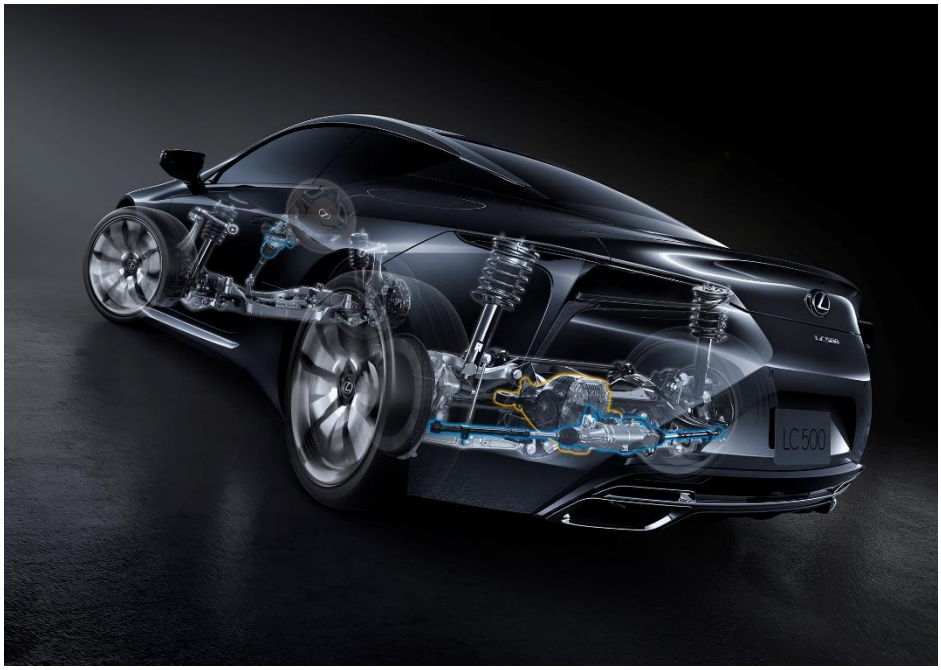
MULTILINK SUSPENSION

The high-mount front suspension system has an optimal arm design to secure the required level of steering feedback. Conversely, the rear suspension has a low-mount configuration, with precisely defined arm locations to achieve high-stability steering characteristics.

Double ball joints are featured on each of the two upper and two lower control arms, allowing for control of the smallest movements from driver inputs and the road surface. This arrangement helps optimise the suspension geometry and create more precise steering response with better initial effort. The driver can appreciate the effectiveness of the LC's suspension designs in the car's immediate response at initial turn-in, with the tyres quickly developing lateral force, delivering stability, controllability and ride comfort.

The LC Coupe and Convertible use run-flat tyres as standard. Tyre sizes are 245/45RF20 front and 275/40RF20 rear with 20-inch wheels, and 245/40RF21 front and 275/35RF21 rear with 21-inch wheels.

LEXUS DYNAMIC HANDLING



The LC Coupe is available with the Lexus Dynamic Handling system (included In the Sport+ specification), which delivers a higher level of handling in all driving scenarios. It provides four-wheel steering, integrating Dynamic Rear Steering (DRS) with the car's Variable Gear Ratio Steering (VGRS), the Adaptive Variable Suspension and the Vehicle Dynamics Integrated Management (VDIM) to ensure controlled co-operation between the front and rear wheels at all times.

The system allows the rear wheels to turn slightly, in the opposite direction to the front wheels at low speeds, giving increased agility, and in the same direction at high speed, for increased stability. The result is excellent steering response in everyday driving, true to the driver's inputs, with a high feeling of rear tyre grip and instantaneous response in high-speed cornering that give a greater feeling of security.

TORSEN LIMITED-SLIP DIFFERENTIAL (LSD)

Torsen limited-slip differential is also included in the specification for both the LC 500 Coupe and Convertible. This allows the driver to enjoy secure acceleration while cornering. When used in conjunction with DRS, it will simultaneously control power to the wheels in co-operation with the vehicle stability control, while the DRS controls the steering angle. The LSD will counteract over or understeer and help keep the car to its intended line. At the same time, a natural driving feel is communicated to the driver, even at the limit of performance.

ACTIVE CORNERING ASSIST (ACA)

The standard (non-Sport+) LC 500h Coupe features Active Cornering Assist (ACA), which functions within the Vehicle Stability Control to help keep the car faithful to the driver's intended line when cornering at higher speeds. The VSC applies brake control to the wheels on the inner side of the curve to help prevent the car from spinning out. The ACA suppresses the tendency to understeer that occurs when the accelerator is pressed in high-G cornering, to achieve superior performance.

The operation of the VSC is co-ordinated with other handling and stability systems through the LC's Vehicle Dynamics Integrated Management (VDIM) and Lexus Dynamic Handling. This allows control of rear-wheel torque and steering torque in addition to braking, in over and understeer conditions.

REAR PERFORMANCE DAMPER

The LC 500 Coupe and Convertible are fitted with a performance damper, located at the rear bumper reinforcement, optimising the attachment point structure and the damping force. This quickly absorbs twists and small vibrations, enhancing the car's handling stability and ride comfort.

AVAILABILITY SUMMARY

	LC Coupe Sport+ grade		LC Coupe except the Sport+ grade		LC 500 Convertible	
	500	500h	500	All models	Option 1	Option 2
Lexus Dynamic Handling	√	√	-	-	-	-
Rear Performance Damper	√	-	√	-	√	-
Torsen Limited Slip Differential	√	√	√	-	√	-
Active Cornering Assist	-	-	-	√	-	√

*Active Cornering Assist and Torsen Limited Slip Differential are mutually exclusive

TAKUMI CRAFTSMANSHIP

- LC quality and performance benefit from the precision skills of Lexus' takumi master craftspeople
- Motomachi factory provides ideal environment for luxury coupe manufacturing
- High-quality interior materials benefit from hand-finishing and stitching
- Continuous, detailed refinement of driving dynamics

The skills of Lexus' master craftspeople – the famous *takumi* – are central to the exceptional quality Lexus delivers in every car it builds. The LC benefits from this precision approach, not just in the intricate details of its fittings and finishes, but also in the way the car rides and performs.

MOTOMACHI: HOME OF THE LEXUS LFA AND THE LC

The LC Coupe and Convertible are built at Lexus' Motomachi plant, famously home to production of the hand-crafted LFA supercar. The factory's lay-out and its facilities have been tailored to production of the LC, to ensure the highest quality levels.

Many of the *takumi* and skilled workers who built the LFA transferred to the LC project, bringing with them a wealth of knowledge and experience, particularly in areas such as the handling of carbon fibre components and hand-finishing.

INTERIOR FINISHING

The skills of the *takumi* can be seen in precise stitching that maintains a flawless finish where leather spreads across complex surfaces. The draping effect of the Alcantara in the door panels and the arrangement of the perforations in the leather seat upholstery are further hallmarks of the attention to detail.

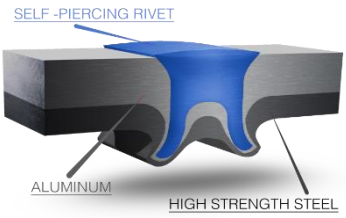
The shape and feel of the steering wheel – a critical link in communicating the quality of the LC's performance to the driver – were defined through hours of testing and re-testing by a *takumi* master driver. His exhaustive analysis produced a highly complex cross-section design and the ideal shape to suit the driver's changing grip and hand position as they steer. The same process was applied to developing the shape and action of the paddle shifters for manual gear selection, crafted in cool-to-the-touch magnesium alloy.

HIGH-SPEED RESIN TRANSFER MOULDING (RTM)

The finish of the LC's Carbon Fibre Reinforced Plastic (CFRP) has a twill weave effect, made possible by a new, high-speed resin transfer moulding (RTM) process, developed at the Motomachi factory from a technique originally used in production of the Lexus LFA. Raw carbon fibre material is inserted into a mould and clamped in place before the insertion of the resin material. As a result, the process has been made suitable for volume production. The use of the CFRP roof makes a major contribution to the LC Coupe's low centre of gravity and reduces overall weight.

SELF-PIERCING RIVETS

Lexus has adopted a new technique for combining aluminium with steel to help save weight in key areas, notably the construction of the front suspension towers. Using self-piercing rivets allows these different metals to be securely joined where traditional welding methods are unsuitable: in place of spot-welding, the material is pierced on its upper side only.



TESTING BY TAKUMI

The skills and experience of the *takumi* were further invested in securing excellent driving dynamics.

The sharpness and responsiveness of the steering, the strong, rhythmic progress of the transmission, the supportiveness and comfort of the seats and the position of the driver's feet and the pedals – all these elements and more were scrutinised to produce the best possible combination, with the goal of not just a rewarding drive, but performance that actively makes you want to drive.

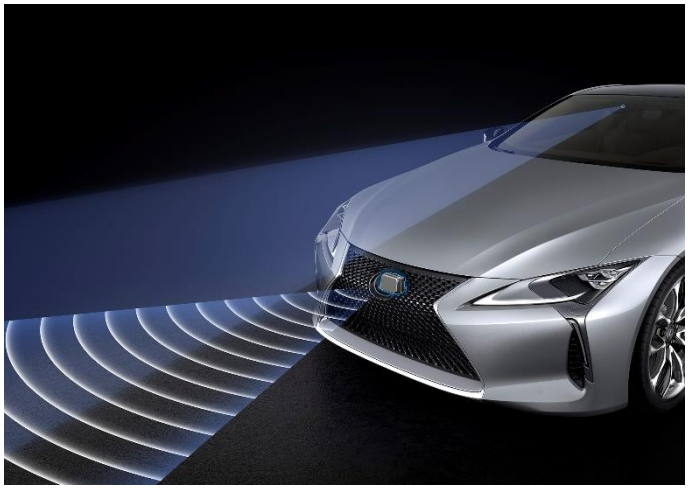
Prototypes were assessed on all kinds of roads, including in Europe and the USA, to ensure that ride and handling meet the different demands of drivers and driving conditions around the world. A *takumi* master driver worked exclusively on the LC to maintain a complete focus, making fine adjustments to achieve the best results, right up to the start of production.

LEXUS SAFETY SYSTEM +

- All LC models equipped with Lexus Safety System +
- Package of active safety features includes Pre-Collision System, Dynamic Radar Cruise Control, Lane-Keep Assist with Lane Departure Alert, Automatic High Beam and Road Sign Assist
- Lexus Safety System+ helps reduce the risk of an accident, alerts the driver to potential hazards and can help reduce the consequences should an impact be unavoidable

All versions of the LC Coupe and Convertible are equipped as standard with Lexus Safety System +, a collection of active safety and driver assistance features that can help the driver avoid an accident, or help lessen the consequences of a collision.

PRE-COLLISION SYSTEM

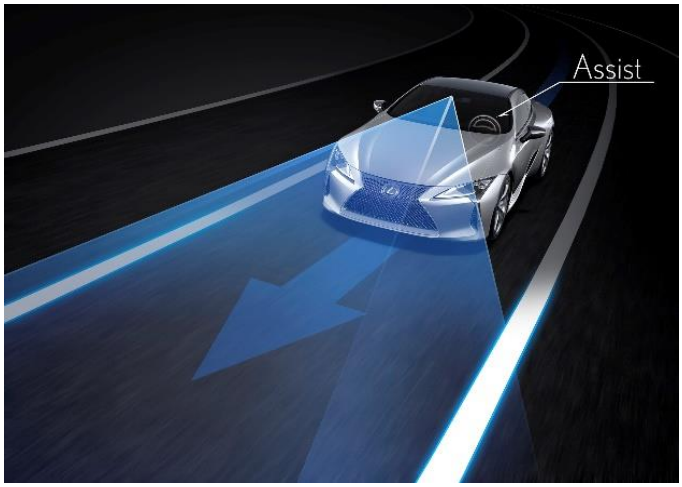


The Pre-Collision System (PCS) detects the risk of an impact. Working in unison with warning and braking systems, it can help lessen the damage sustained in a collision. It can recognise both vehicles and pedestrians in the vehicle's path, using data from a forward recognition camera and a millimetre-wave radar sensor.

If it determines that the possibility of a collision is high, pre-collision warning control and pre-collision brake assist control are initiated. If a collision is imminent, pre-collision braking control will be engaged help reduce the severity of the collision, or avoid it altogether. If the driver fails to react and the system judges a collision to be imminent, the brakes are automatically applied to reduce vehicle speed by up to 40 km/h, which could potentially bring the car to a stop, to help mitigate the force of an impact.

DYNAMIC RADAR CRUISE CONTROL

The same radar unit used by the PCS provides the LC with all-speed Dynamic Radar Cruise Control (DRCC). This helps the driver maintain a safe distance from the vehicle in front, down to very low speeds, even to a standstill. Once the way ahead is clear, the LC automatically and smoothly accelerates to its pre-set cruising speed. If the car has been brought to a halt, the driver simply needs to press the accelerator briefly to reactivate the system.



LANE KEEP ASSIST, LANE DEPARTURE ALERT AND VEHICLE SWAY WARNING

The LC's Lexus Safety System + package includes Advanced Lane Keep Assist, which recognises when the vehicle is deviating from its lane on the highway. It helps the driver steer the vehicle safely back to its correct path, automatically providing steering inputs to keep the car within its lane. Working with the DRCC, it can operate even at very low vehicle speeds. The driver can also choose which alert they prefer (warning sound or vibrating steering wheel) and the sensitivity of the warning, via the multi-information display. The system can also be switched off, if desired.

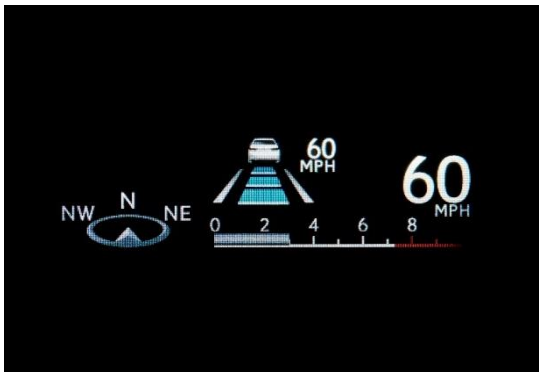
Lane Departure Alert (LDA) uses a camera on the windscreen to track the vehicle's course between lane markings painted on the road surface. If it judges that the vehicle is about to move out of its lane without the turn indicator being used, the system triggers a light on the multi-information display and sounds a warning buzzer. It will also apply appropriate steering control force to help bring the vehicle back on course.

A Sway Warning function monitors the car's position in its lane and the driver's steering inputs. If it detects degrees of vehicle swaying, it will sound an alert and display a warning on the multi-information display, recommending the driver takes a break.

AUTOMATIC HIGH BEAM

Lexus Safety System + includes Automatic High Beam (AHB), which detects oncoming traffic and vehicles ahead and automatically switches the headlights between high and low beam. This helps maximise illumination and give the driver the best possible field of vision when the road ahead is clear, while minimising the risk of dazzling other road users.

ROAD SIGN ASSIST



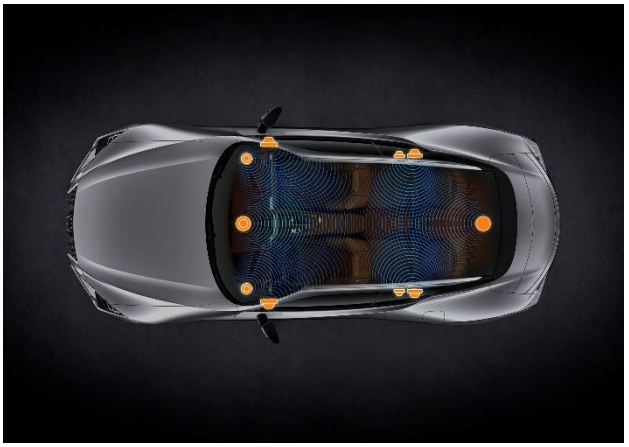
With Road Sign Assist the driver gains a "second set of eyes" when it comes to important road signs on motorways and major routes. The system uses a front camera which recognises principal warning and command signs; these are then replicated on the multi-information display, reducing the risk of the driver not being aware of speed limits, lane closures and other important information.

If the system detects the driver is not respecting no overtaking, no entry and speed limit commands, it will give visual and audible alerts. The driver can customise the system's operation via the multi-information display, using switches on the steering wheel.

AUDIO SYSTEMS

- Thirteen-speaker Mark Levinson Reference Product audio system option
- Twelve-speaker Pioneer premium audio surround system for real-life immersive soundscape

MARK LEVINSON



The LC Coupe and Convertible maintain Lexus' auto-industry exclusive partnership with Mark Levinson, offering customers option equipment from the audio specialist's top-of-the-range Reference Product.

The 13-speaker speaker system was designed specifically to achieve the best results within the LC's cabin. Mark Levinson engineers also supported Lexus requirements for low vehicle weight, achieving an overall 30% reduction in speaker weight, without compromising performance.

The speakers use advanced materials and construction techniques to achieve the best results, including the first application of Direct Drive Unity, a speaker-within-a-speaker concept that allows sound quality and pressure level to be maximised in a compact design. The system also uses Clari-Fi music restoration that automatically analyses and improves the quality of all types of compressed, digital music sources.

PIONEER

The LC Coupe and Convertible are equipped as standard with a 12-speaker Pioneer premium audio surround system. Specifically designed for the LC, this system includes four 9 cm CST (Coherent Source Transducer) double speakers, combining tweeter and mid-range functions, located at the base of the front pillars and in the rear cabin side panels. The two 16 cm woofers in the front doors are contained in a special housing to reduce vibrations, resulting in excellent low-frequency sound generation. Other elements include a 9 cm midrange speaker in the centre of the instrument panel, a 25 cm subwoofer in the back of the rear seats, and an eight-channel Class-D amplifier under the luggage compartment floor.

ANNEXES

Specification sheets:

1. LC 500 Convertible
2. LC 500h coupe
3. LC 500 coupe

Infographics

1. LC 500 Convertible
2. LC 500h coupe
3. LC 500 coupe

Stories:

1. Cabin calm and a chorus of power in the Lexus LC Convertible
2. Lexus LC Convertible catches the wind for complete comfort
3. Lexus LC Convertible: producing the perfect soft top
4. Lexus LC Convertible: capturing ultimate beauty in design
5. Lexus LC couple delivers even sharper and more refined performance
6. 10 Amazing facts about the Lexus LC
7. Making it Beautiful, Making it Work interview with LC Convertible Chief Designer and Chief Engineer
8. The Lexus LC Convertible Regatta Edition
9. Blazing Carnelian: a new colour debut for the 2021 Lexus LC Coupe