This press pack accompanied the UK launch of the third generation Lexus LS with the LS 430 in November 2000. Some changes were made to the model range during its time on sale, which can be tracked using the Timeline feature available on the LS archive web page. Additional assets and information relating to the LS range may be obtained from the Lexus press office if required.

LEXUS LS430

Lexus has again redefined the automobile market's expectation of luxury cars, with the introduction to Europe of the all-new Lexus LS430. A decade ago, the first generation Lexus established new benchmarks for performance, quality, quiet ride and luxury content.

Today again, Lexus have designed the new LS430, the third generation of its flagship model, to be as far ahead of current competitive luxury models as the original LS400.

"The original Lexus LS400 shook up the motoring world. It established totally new standards in refinement, build quality, durability, quietness and longevity. Many contemporaries benchmarked themselves on that model" said Ian Mathews, Product Manager, Lexus Europe. "With the Lexus LS 430 we aimed to improve on every one of those strong points."

That is why the new LS 430 offers an even more refined driving experience, thanks to a smoother engine and a suspension designed to improve both handling and comfort. Powertrain innovations help ensure that the power delivery is as smooth as possible. Enormous effort was put into achieving the lowest Cd value in the luxury segment, so that the car could be quieter and very fuel-efficient at the same time.

The interior space has been increased thanks to a longer wheelbase, although the outside measurements of the car have barely changed.

"There isn't a single area of this car in which we haven't asked ourselves, 'what can we do to deliver a superior customer experience", said Ian Mathews. "We bring to market a car which sets new standards in refined performance, build quality and comfort."

Engine and Powertrain

The new engine fitted in the LS 430 is the 3UZ-FE, a 4.3-litre V8 with 32 valves and double overhead camshafts. It develops 281 DIN hp at 5,600 rpm and 417Nm of torque at 3,600 rpm. Mated to a computer-controlled five-speed automatic transmission, it powers the Lexus flagship from 0-100 km/h in just 6.7 seconds, and takes it up to a top speed of 250km/h. In spite of all this power, 3UZ-FE meets Step IV emission regulations.

The engine management systems are among the most sophisticated available, controlling fuel injection and ignition timing to thousands of a second. The intelligent Variable Valve Timing (VVT-i) eliminates the traditional compromise between low-end torque and high-rpm horsepower by optimising valve overlap throughout the engine's speed range.

Further adding to the efficiency of the 4.3 litre power unit, Lexus engineers reduced both the overall weight of the engine and the weight of component parts such as pistons. This along with a reduction in the friction of moving parts made a significant contribution to reduced NVH and greater fuel efficiency. The use of lead-free alloys in components such as valve-seats and connecting rods also contribute to preserving the global environment.

The LS 430 engine is complemented by a new Super ECT (Electronically Controlled Transmission) five speed, intelligent automatic gearbox which can adapt its gear shift pattern to suit driving style and road conditions. The transmission is also linked to the computerised engine management system, to momentarily reduce torque for even less discernible gear changes.

Another feature: the AI Shift system recognises slopes. When driving uphill, the system will avoid unnecessary up-shifting, while during a downhill drive it is able to select a lower gear in order to provide engine braking.

Other features include: -

ETCS-i (Electronic Throttle Control System - intelligent) and Torque Activated Powertrain

The ETCS-i monitors the engine operating conditions, to supply the optimal amount of torque under any circumstance. This results in smoother acceleration, superior hill-climbing ability and it eliminates jerky starts. ETCS-i also controls the snow mode,

cruise control and is linked to the VSC- (Vehicle Stability Control) and the TRC- (Traction Control) systems.

ETCS-i works in synergy with the "torque-activated" powertrain control.

The Torque Activated Powertrain helps control the torque of the engine, by determining the level of throttle in function of the accelerator position, the engine regime and also the conditions under which the car is driving. As a result, the acceleration is smoother, and a constant speed can be maintained with the slightest movement of the accelerator pedal, also avoiding unnecessary downshifts.

Another feature of the Torque Activated Powertrain is its ability to recognise slopes. On climbing roads, it will increase engine torque to avoid downshifts. When driving downhill, it will select a lower gear in order to provide engine braking.

The result is a more relaxing drive, making optimal use of the car's power and doing away with the discomfort of constant gear changes.

ACIS (Acoustic Control Induction System)

ACIS improves torque over the whole range, but especially in the low-speed range, by changing the intake manifold length in three stages. This is done by opening or closing 2 intake air control valves.

The powertrain of the new LS430 ranks amongst the most refined in the industry, delivering smooth power and a ride that even surpasses that of the outgoing LS400.

Revised Suspension and optional air suspension

In addition to the Lexus philosophy resulting in an exceptionally powerful yet quiet and fuel efficient car, the latest chassis developments give the driver of the LS 430 the highest levels of confidence and stability in all road conditions. The ride is serenely quiet and comfortable, to elevate travelling refinement to a new world-class level.

Improved packaging of the overall design gives a well-balanced front/rear weight distribution of 52/48% and a tighter turning radius of 5.2m for easier manoeuvring. The new front and rear suspension are designed to offer an exceptionally flat ride and straight line stability under even the most adverse road conditions. The aluminium-intensive design utilises new bearings and a longer wheel stroke for better

ride comfort and responsiveness, while the lower unsprung weight of the components additionally aids ride and handling.

Electronically Modulated Air Suspension

In addition, electronically modulated air suspension is available as an option on the Lexus LS 430. The system utilises the non-linear H infinity control method - a technology pioneered by Toyota/Lexus - to control the damping of the air suspension and realise outstanding stability and ride quality.

The system maintains vehicle ride height at a specified level regardless of the number of passengers or load level. The height can be raised 20mm higher than the normal position for unpaved roads and is automatically lowered at high speeds to improve stability and aerodynamic properties. This generates a reduction in the coefficient of drag (Cd) from 0.26 to 0.25, the lowest of any car in the segment.

Tyres

225/55R 17 tyres were specially developed for the LS430, to combine cornering grip with enhanced wet weather performance and reduced rolling resistance to improve fuel economy. They are fitted on new seven-spoke aluminium wheels, adding a further touch of style to the car.

Designed and Built to the Finest Tolerances

In building the new LS 430, Lexus used a supercomputer to digitise the precise surface design of the body. The unit of measure used was 1/1000 of a millimetre, ten times more precise than the typical measurements used by other car companies.

The result is more-precisely stamped sheet metal for better fit and assembly quality. While Lexus has won the J.D. Power and Associates Vehicle Dependability Study in every year it has been eligible, the company made 57 major improvements for even longer-lasting durability.

New welding methods, connections and structural design make the LS 430's body much more rigid. This and the ultra-precise build standards ensure yet lower NVH (Noise, Vibration and Harshness) and the elimination of annoying noise frequencies.

The tighter construction tolerances allow visibly smaller gaps between the body, doors, engine and luggage covers. Along with flush glazing and careful control of

aerodynamics, they contribute to major reductions in wind noise. This is further enhanced thanks to refined door pillar shapes and aerodynamically designed door panels and seals, as well as control of the airflow under the car using a flat engine undercover, fairings around the fuel tank and rear suspension and management of the airflow around the exhaust system and rear bumper areas.

As a result, the new LS 430 achieves the lowest Cd figure (Cd 0.25 with air-suspension, 0.26 with coil suspension) of any car in the luxury segment. A quiet ride is not the only benefit of improved aerodynamics; fuel efficiency is increased because of it, as is the stability at high speed.

DESIGN

The design of the Lexus LS 430 was finalised after an exhaustive two-year period which involved a design competition across three continents and 16 full-size clay models. The body styling of the LS 430 maintains the flavour of the original, but features shorter front and rear overhangs, as well as a slight wedge shape in the flowing lines from front to rear which create and elegant overall form, further enhanced by the use of 17-inch alloy wheels.

Large, upsweeping, asymmetrical High Intensity Discharge (HID) headlamp units with keynote aluminised extension fairings create a distinctive front end, unique to the Lexus LS 430, while the refined front grille reinforces the appeal of true Lexus presence.

The rear design highlights the more spacious cabin with simple yet refined styling. Traditional 3-stage rear combination lamps maintain the high quality image of the original LS 400, but are shapelier, enhancing the cleaner rear end styling of the new model.

The luggage compartment is 24% larger than the previous model (now, the boot measures 573 litres). This has been achieved by careful detail packaging, such as moving the fuel tank further forward, to liberate more customer-usable space. This is further enhanced by the use of link-type, bootlid hinges which are designed not to strike luggage as the lid is closed. Two courtesy lamps, one on the luggage compartment lid and a second one deep in the luggage area make night-time loading and unloading easier.

Consideration was given to reparability during the design of LS430. The bumpers have been developed to distribute impact over a broader area, reducing damage in case of a collision. The body structure helps to safeguard large and expensive parts.

The Highest Standards of Interior Style and Content

Before designing the LS430 interior, Lexus designers and engineers studied luxury and craftsmanship outside the automotive realm. They visited five-star hotels, including presidential and royal suites and surveyed first class aircraft cabins and luxury jet interiors. They also observed luxury jewellery and watch makers at work, as well as visiting quality guitar makers, to learn their secrets of moulding wood.

The large and comfortable interior space of the new Lexus LS 430 has been designed to provide a special combination of ergonomics and emotion. The interior is designed for greater space, comfort and luxury, taking maximum advantage of the newly-developed packaging. Front headroom increased by 25mm, whilst the rear head room gained 40mm.

High-quality wood-grain panelling, featuring walnut grain, is extensively used on panel trims and in door inserts. Precise fit and finish emphasise Lexus craftsmanship.

The sculpted trim flows into the dash, maintaining the feeling of integrity and quality, with instrument clusters carefully designed to complement the overall luxurious atmosphere. The Lexus LS 430 maintains the traditional ergonomic layout of analogue-type instrumentation for ease of use, the Optitron combination instrument panel located closer to the driver's line of sight and featuring white LED figures and red LED indicator needles on a low-reflection, upwardly curved, smoked acrylic face.

All Lexus LS 430’s offer full leather trim as standard. The hides used are rigorously selected to reduce the chance of imperfections.

Both front and rear seats have been designed to enhance the feeling of luxury associated with the Lexus experience. They have the benefit of significant design input from Europe, being designed around European-sized mannequins and driving postures, which are more reclined than in some other markets. This requires different-length seat cushions and greater lumbar support.

Power adjustment, with pre-set memory functions is available as an option to tailor the rear seat to suit individual postures. When the doors are opened, an auto-return function returns the seats to the previous position. Further comfort can be provided

by specifying the optional massage function, which can gently soothe and vibro-massage rear seat passengers.

As an option, separate air conditioning for the rear-compartment can be ordered. It comes with a small cool box, incorporated in the centre-part of the backseat.

The front seats feature power adjustment in all dimensions, with a memory function for instantly resetting favourite driving positions. The power tilt and slide mechanisms located in the seat cushions allow 240mm of fore and aft movement, while the driver's seat cushion can be adjusted in length by over 70mm for greater thigh support. Additional adjustments for the front seats include dual lumbar controls and the automatic adjustment of power headrests with seat sliding, to offer optimum comfort and protection.

Power adjustment for steering wheel tilt and reach is standard, with a memory function returning the controls to the pre-set position when the ignition is activated. Up to three combinations of preferred steering wheel, seat and mirror adjustments can be stored.

The steering wheel also features controls for the audio system, which includes as standard, an LW/MW/FM radio data system, cassette and an in-dash, single-feed six-disc CD changer, feeding a seven-speaker system (Nine speaker system is optional). The new CD changer location allows for a larger dual glove box.

Advanced Climate Control

The Lexus LS 430 features as standard one of the most sophisticated climate control systems ever fitted to a production vehicle. The system utilises advanced electronics and sensor technologies to ensure a fresh comfortable and uniquely clean atmosphere in the cabin at all times.

The automatic recirculation system switches the airflow to recirculation mode when traffic fumes are detected. In order to do this, the system is equipped with a smog ventilation sensor. This sensor does not only detect HC and CO as it already did on the LS400, it is now also able to trace NOx. As a result, it is now more sensitive to diesel-fumes.

As an added benefit, the absence of polluted air ensures maximum air conditioning cooling performance in summer, and prevents fogging of the windows in winter.

A newly developed clean air filter removes pollen and dust from the interior, and also has a deodorising effect, keeping the cabin air much cleaner.

An air purifier comes as an independent option, or as a set option in conjunction with the optional rear air conditioning. The air purifier treats the air inside of the cabin, to further clean it from dust, pollen and other impurities. In case of necessity and in function of the air outside of the car, it will add outside air to improve the air quality inside.

The system also features intelligent swing register control. In function of the temperature settings and the signals of the room temperature sensor, the solar sensor and the occupant detection sensor, the air conditioner ECU controls the orientation and the angle of the front centre registers.

In an initial stage of cooling down or warming up the interior, the registers will direct the airflow straight at the occupants. When the temperature in the interior has stabilised, the airflow is directed away from driver and passenger.

When the navigation system is fitted, the climate control and car audio functions are controlled by a central multi-display, utilising a 7.0 inch-wide LCD (liquid crystal display) screen with an infra-red, touch-sensitive panel to offer improved ease of use. Frequently needed audio and aircon functions can be selected through conventional switches set around the display, which can be used regardless of the screen mode.

Climate Control Seats

A further refinement is the option of Climate Control seats for the driver and front-seat passenger. These utilise seat-mounted blowers to direct hot, cool or ambient air through air distribution channels in the perforated seat upholstery when specified. The system uses a Peltier element to generate the right air temperature.

If the Climate Control seat option is not installed, then a conventional seat heater is installed for the front seats. This type of heater is always installed for the rear seats.

Navigation System

The Lexus GPS satellite navigation system has been further enhanced from the version previously used in the LS 400, by upgrading from CD (compact disc) to DVD (digital versatile disc) storage. The size of the touch-screen has been increased to 7 inches, to improve ease of operation and the visibility of the display.

The DVD, which uses a smaller laser beam diameter, is able to store approximately 13 times the volume of data. This allows for example, the storage of the many European countries' road systems on a single DVD, removing the need to change discs in the system for long-distance travel. The Lexus Navigator system can even highlight points of interest, search for a house number or find petrol stations, in addition to showing the car's exact position at any time on the dashboard screen and guiding its occupants with voice instructions to their selected destination.

Mark Levinson Audio

The new Lexus LS430 also offers the exclusive option of the ultimate in car audio, as a result of a unique collaboration with the one of the world's most exclusive makers of home and concert audio systems, Mark Levinson.

The company, based in Middletown, Connecticut, USA has for the past three decades, created a unique market world-wide for the very best in audio quality. Its domestic systems cost between $ 20,000 and $ 120,000 and are the preferred choice of those who are particularly demanding when it comes to hi-fi sound.

For the first time, Mark Levinson is supplying an audio system for cars, after the company judged the cabin ambience of the Lexus LS 430 to be the first in-car environment that was appropriate to allow occupants to experience and appreciate the subtle detail and nuance that separate the best systems from those that are merely good.

The Mark Levinson audio system features a custom-designed amplifier and eleven specially developed Mark Levinson speakers spread over 7 locations, linked to an AM/FM radio system, cassette and CD player with an in-dash 6-CD auto changer. Special refinements include DC servos programmed in software in the seven-channel system to prevent DC reaching the speakers and analogue amplifiers, which replace the ubiquitous 'amp-on-a-chip' components used on other systems.

Lexus Park Assist System

The bumpers of the Lexus LS 430 can also contain six ultrasonic sensors at the front and four at the rear, providing input to the optional Clearance Sonar System which tells the driver when there are obstacles nearby, where they are and how far away.

The system, a refinement of those used on earlier Lexus models uses smaller sensors which appear less obvious, but can sense an object a metre away forward or

rearward, or at about 0.5m to either side. Buzzers and a display on a monitor warn the driver, with the pitch of the warning sound changing according to the proximity of the obstacles.

Rain-sensors and low reflection/water repellent glass

Further attention to detail, fitted as standard, includes rain-sensors which automatically trigger the car's windscreen wiper system, the use of the world's-first low-reflection windscreen glass to reduce reflection from the dashboard and a water repellent coating on the front side windows, which aids rainwater dispersal and improves visibility. Laminated side glass offers even better levels of sound insulation.

Smart Key System

Another state of the art feature from Lexus is the LS 430's 'Smart Key System' option, which does away with conventional key manipulation.

When the doors are locked and a person with the Electronic Key comes within about 1 metre of a door handle, the key communicates with the transmitter built into the door handle and matches ID codes, and then a touch of the door handle unlocks the door.

The system also operates as a ‘Smart Ignition’. Once the person with the electronic key is in the car, its ID code is automatically recognised and the electronic key light in the instrument panel comes on. Then, by pushing and turning the engine switch, the driver unlocks the steering wheel and starts the engine.

When the Smart Key System is switched off, the electronic key operates as a conventional key, with normal lock, unlock and trunk lid opening functions.

Door Closer System

Further enhancing the Smart Key system is an advanced Door Closer system, which removes any requirement for door slamming. The system senses a closing, but unlatched door in just 0.3 of a second and a built-in electric motor in both front and rear doors automatically pulls it closed until it latches. The system also includes a Door Check facility which holds the door open at any angle for exiting or entering.

Ignition Switch-Linked Automatic Electrical Retractable Mirrors

To avoid damage when the car is parked, the LS430 is equipped with side-mirrors that are automatically retracted when the ignition switch is turned from "on" to "acc" or "lock".

Illuminated Entry System

Convenience and safety have been improved, thanks to the comprehensive illuminated entry system. In function of the unlocking and/or opening of doors, the front interior light, rear interior light, ignition switch light, front footlights, inside handle lights and even courtesy lights mounted in the exterior rear-view mirrors will automatically be lit up.

Increased storage space

Many storage spaces have been integrated throughout the cabin of the new LS430. The volume of the glove box has been increased, hinged door pockets have been adopted for the front doors and there is a special case for sun glasses mounted on the ceiling. Furthermore, there are new under-seat storage areas for driver and passenger, as well as a two-step slide console between the two front seats.

New Colours

Five of the ten exterior body colours available for the car are new. The finest automotive enamels, with a high solid content, are used to ensure the smoothest possible finish as there are less VOCs (Volatile Organic Compounds) to evaporate. The excellent thermal flow of these paints also means that the paints are less affected by the undercoating during baking. This has allowed the use of a leadless cathodic primer, which combines body protection with being easier on the environment.

SAFETY

The Lexus LS 430 is much more than one of the most luxurious environments on four wheels. Throughout the development, safety remained a primary target. As a result, the LS430 has become also one of the safest cars on sale today.

The body was designed to maximise the efficiency of impact-absorbing crumple zones in the front and rear, protecting the highly rigid passenger compartment. Substantial side impact protection bars are built into the doors. The front seat frames have been designed to transmit the energy of a side collision to the floor tunnel.

Particular attention was also paid to crash-compatibility, helping to protect occupants of other cars in the event of a collision.

But that is not all. An extensive host of safety-devices - both active and passive - help contribute to the safety of the LS 430's occupants.

Anti-lock Braking System (ABS) with Electronic Brake force Distribution (EBD) and Brake Assist (BA)

The LS430 is equipped with a four-channel ABS system that is linked to the cars four ventilated disc-brakes.

The EBD regulates the distribution of brake force front and rear, left and right, according to the driving conditions.

A further significant safety enhancement is the use of Brake Assist, which interprets a quick push of the brake pedal as emergency braking and supplements the braking power applied to maximise braking performance in conjunction with ABS.

This overcomes a known problem in emergencies of drivers not applying sufficient force to the brake pedal. A key feature of Brake Assist is that the timing and degree of braking assistance is designed to ensure that the driver doesn't discern anything unusual about the braking operation. When the driver eases up on the brake pedal, the system reduces the amount of assistance it applies.

Traction Control (TRC) and Vehicle Stability Control (VSC)

TRC is fitted to reduce wheel spin under acceleration and to improve tire grip on slippery roads, by reducing the output of the engine and applying the brakes when the system feels that one of the wheels is losing traction.

Driver control is further enhanced by a VSC system. The innovative VSC system, introduced on the 1998 LS400, monitors the vehicle's behaviour during cornering and maintains vehicle stability by using the car's ABS and traction control sensors to correct oversteer or understeer before it occurs by limiting rear wheel spin and lightly applying differential braking on slippery surfaces.

Airbags

The new LS430 is equipped with dual SRS front airbags. The passenger airbag features two-stage variable-force activation. Sensors determine the force with which

to deploy the front passenger airbag, hence helping to maximise the occupant restraint.

SRS side curtain shield airbags are also fitted as standard. Housed in the roof side sections, they inflate at the same time as the front seat mounted SRS side airbags to cover the front and rear side window areas. In addition, the front seats and rear outboard seats are equipped with seatbelt tensioners with force limiters.

ENVIRONMENT

Despite its improved specification and performance, the new LS430 is exceptionally kind to the environment.

Although the capacity of the engine has increased, fuel consumption has been improved compared to that of the LS400 (12l/100km on the combined cycle for LS430, compared to 12.2l/100km for LS400).

Furthermore, the LS430 meets Step IV emission regulations. This was achieved with the help of three ultra-thin wall, high-cell ceramic three-way catalytic converters (2 in front and 1 in the rear). To add to their efficiency, the exhaust manifolds have been executed in stainless steel, allowing the catalysts to quicker reach their optimised operational temperature.

Recyclable materials are used in many parts of the LS430. TSOP (Toyota Super Olefin Polymer), TPO (Thermo Plastic Olefin) or TPU (Thermo Plastic Polyurethane) are used for front and rear bumper covers, door mouldings, instrument panel... The list is extensive. In fact, nearly 90% of the LS430 is now made out of recyclable material. Materials which have been recycled feature in luggage compartment trim, part of the engine under-cover, front fender splash shields and various other parts. And finally, the use of environmentally harmful products such as lead, chlorine and mercury has been drastically reduced compared to the current generation LS.

"The Lexus LS 430 stands for ‘Probably the Best Car in the World’. It is our flagship" said John Howett, Vice President of the Lexus Brand in Europe. "It demonstrates something new that is happening in Lexus. We have engineering excellence in every component, but we are also adding more style, more emotion, and more passion to Lexus."

The new Lexus LS430, from the Chief Engineer's viewpoint.

The role of the Chief Engineer is particularly important within Lexus. It is a role which encompasses much more than the engineering functions. A Lexus Chief Engineer is appointed for every new model, usually in the earliest stages of its conception. He assumes responsibility for almost every aspect of the car, from its earliest design brief through the execution of the interior and exterior styling, the development of its mechanical specifications, testing and eventually, preparation for production.

The ultimate of course, is to head the team which is tasked with 'improving on perfection'. That was the role given to Yasushi Tanaka, the Chief Engineer of the LS430.

Chief Engineer Tanaka is a 50 year-old aeronautical engineering graduate of Kyushu University, who joined the Toyota Motor Corporation in 1973. He spent 19 years in Toyota's Body Engineering Division, working on models including the second generation Celica, Carina, original MR2 and Crown, before switching to work on Celsior and the Lexus LS.

"Just after the launch of the second version of the LS400, I was asked to take charge of the next LS. I had two thoughts" said Mr. Tanaka. "One thought was uneasiness, asking 'Can I be equal to the task?'. But I also felt very privileged: for an engineer, it is a unique opportunity to be asked to aim for the top.

"The target was to create the same impact as the first LS. The biggest factor of that impact was that silence and smoothness, which had set new standards in the segment. Because technology evolves continuously, we couldn't just aim to improve on current competitors.

"Instead we predicted the level of the next generation of the competition, and aimed to be better than that. After that we examined what we had to do to meet those requirements.

"It is easy to say 'create the world's best', but difficulties continue in practice. Things don't always happen as you calculate or estimate. Driving stability, safety and silence were the special priorities and have taken up a great deal of our work and effort. The slogan 'relentless pursuit of perfection' really applied to the way we worked.

“Aerodynamics is very important for a high performance vehicle which runs at high speed. There are big merits, such as running stability, the reduction of wind noise and the improvement of fuel consumption by reducing resistance. I had majored in aeronautical engineering, and therefore I suppose you could say I am slightly obsessed with aerodynamics. So I decided to aim for the best aerodynamic performance (Cd=0.25) in the segment.

“Moreover, I believe that a good aerodynamic design is also beautiful. I didn’t aim merely for good styling, but also adopted the advice from design colleagues considering the best use of the packaging. Wind tunnel examination using scale models was repeated right from the concept stage of the design, to achieve the highest levels of airflow management.

“That extended to areas such as control of the airflow under the floor and in the engine bay, which were especially effective in achieving the target performance.

“Few people believed that we would reach the level of Cd that we were aiming for. There were even petitions to give up from engineering design and evaluation divisions, but my staff really worked hard and wouldn’t abandon the target. The fact that we succeeded with the achievement of the
Cd 0.25 target makes all our efforts worthwhile. Needless to say, we are very proud now.

“In addition to Toyota’s own wind tunnel, we used the Maibara wind tunnel which was also used for the development of the Shinkansen Bullet Train, for a special reason. One characteristic of this latest wind tunnel is a very low background noise. We required the quiet wind tunnel for the accurate analysis for one of our biggest priorities, the reduction of wind noise.”

In addition to the honing of the aerodynamic functions of Lexus LS430, the styling of the new model was equally carefully crafted. It is all new, but still looks very familiar, another example of the subtlety of touch created by Mr Tanaka and his team.

“We had four design sites competing for the project, thus there were four design proposals; from the Oshima studio of the head office design section, an HQ design division, CALTY and EPOC. The final design was selected in the end through a series of scoring by internal panels and discussions at design evaluation meetings.

“Mr. Oshima was the chief creative designer, working with the creative designers, Mr. Nagaya (exterior) and Mr. Yamasaki (interior). Moreover, Mr. Matsuda, the master modeller of clay models, was also dedicated to creating the very delicate exterior surface with outstanding skill.

“I think that the design meets the two targets we set ourselves. The first was the realisation of a beautiful high-class design which leads a new era.

“Our second objective was to ensure the design evolved and moved forward greatly from the LS400, yet is still had to be recognisable. If you look carefully, we achieved that too.”

The head of interior design Mr Yamasaki was just as dedicated: “Since a similar interior was continued for two generations, I thought the time had come for some change. The basic concept, however, remains: excellent usability and human engineering. We aimed at improving the current design with an open and high-class, luxury, feeling.

“The increased use of real wood panels and creation of continuity were key points. We moved the navigation screen higher, for better visibility and we worked very hard to secure enough storage space, a big source of customer satisfaction.

“One basic thought is that ‘all materials should be the genuine article’. We adhered to this by the use of the best quality leather and real aluminium material is used for the upper centre console and door trim switch base. For the real wood panels, we used Californian walnut, blending its colour into the interior. It is a production challenge too, in the case of wood ordering, it is especially important to estimate accurately as we can order the wood material only once a year.”

There are of course, a number of noteworthy ‘additional luxury’ items featured in the LS430 interior, some of which may seem unusual to European eyes, such as the rear massage seats. However for Mr. Tanaka, they are a logical part of enhancing Lexus comfort:

“Actually, this function was adopted quite long ago on domestic luxury models such as Toyota’s Century and Crown. It has been adopted on Celsior, the Japanese

domestic equivalent of LS400, since the first generation. This time, for LS430, I proposed to adopt this for overseas market also."

"The 'swing grille' air conditioning is a further development of a feature that was already available on some Japanese models from our range. I decided to adopt this feature on LS430 as there were considerable numbers of requests from customers to adopt this feature also on domestic Celsior. But I didn't feel like just copying the existing system, without any progress or improvement, so we developed a more intelligent swing grille which applies a computer and seat sensor. The Inside/Outside air conditioner auto control was a proposal from our engineering design and evaluation section. It combines the functions of the air conditioning ECU, the exhaust gas sensor, air purifier, indoor sensor and deodorization filter, to sense if polluted air is about the enter the cabin, recycle and purify it.

"Lexus is a global brand, and I think that in this segment, customer requirements in terms of quality don't differ much anywhere. We believe that the LS430 can be the best around the world if we develop it to the highest target. There are specification differences among the markets, but we prepare a lot of choices to correspond to individual customers' needs.

"We noticed that European customers have especially high demands regarding handling and performance, including super high-speed driving. We therefore prepare differently tuned suspensions for Japanese, US and European markets. The European specification suspension however is also available in other markets under the name of "Sports package." Besides that,
I think European customers are more interested in environmental issues and fuel consumption than others, so we made sure that we met their requirements in these issues as well. Other markets benefit as well.

"In the powertrain, we have increased the engine displacement from 4.0L to 4.3L to strengthen the middle-low range torque. We attain our engine efficiency and emissions performance by the combination of our well-known VVT-i and a variable intake system.

"I think that luxury vehicles are especially required to show consideration for the environment. We targeted the improvement of fuel consumption in practical use,

even though the engine displacement has increased. As for the exhaust emission control system, it is ahead of other vehicles in clearing Europe Step IV.

“Regarding recycling, TSOP plastic which is good material for recycling, is used for the bumpers, side mouldings and so on. We also adopted the easily recyclable TPU plastics for the surface of the instrument panel and door trim. For undercoat and sealer, we chose non chloride material. As a result, the amounts of chlorine used in the car are reduced to one third of the previous model.

“As a matter of course, environmental load substances, such as lead and mercury, are also reduced as much as possible. Moreover, a natural fibre-based material is used as the basis material of door trims, back boards and recycled materials are used in areas such as dashboard sound damping. I intend to keep on developing LS430 as the most environmentally conscious vehicle in the world as well as the most luxurious.

“For me, the development of the Lexus LS430 has been about selecting the very best parts, one by one and then pursuing the very best performance in every section. I’m proud of the car, but I’m proudest of all of my team. They completely understood the meaning of the “relentless pursuit of perfection” and have remained wedded to their tasks without any compromise to the last.”

LS430 Marketing Interview, Ian Mathews, Product Manager, Lexus.

As the new Lexus LS430 takes to the streets, Ian Mathews, Product Manager for Lexus in Europe has no doubts about the magnitude of what is expected for the new model:

“The original LS400 shook up the motoring world. We’re aiming to repeat that impact on the market” said Ian. “LS400 has a clear identity, strongly linked to build quality, durability, refinement and longevity. With LS430 we aimed to improve on all those strong points, but we’re aiming at the same target market.

“Typical Lexus LS buyers are in their mid to late 50s. While this is older than average in the sector, we are expecting this age group to widen as more people become ‘Lexus aware’. We also count on the driving characteristics of the LS430; they should also lure more and perhaps younger people.

“LS buyers have reached a position in life where they are wealthy, independent and less affected by peer pressure. They’ve made their own decision to buy an LS, rather than being dictated to by accountants. Nor do they feel pressured to buy a ‘flashier’ car than their contemporaries. They are people who have created the independence, either as a company owner or wealthy individual, to break out of company buying restrictions and make their own decision on the car they want to own.

“The LS is an educated choice. The buyer frequently already knows a great deal about what the LS430 and the Lexus brand have to offer. We therefore have to exceed their highest expectations.

The traditional benchmark in the category was the Mercedes Benz S-Class. “Moving forward, Lexus is now facing much stronger global competitors, although often, we are the benchmark now”, said Mathews.

“A decade ago the success of Lexus and the original LS400 forced competitors such as Mercedes Benz and BMW to rethink their product development and production processes in order to lower costs and add value.

“At the basis of the Lexus philosophy is the ‘YET’ concept which concentrates on overcoming engineering paradoxes in order to deliver the ultimate customer experience. Examples include powerful yet refined, responsive yet comfortable, quiet yet fast, aesthetically pleasing yet technologically advanced and easy to use.

“As with all our products, LS430 uses some of the most advanced technology around. Yet, we believe very firmly that the only reason to use technology is when it provides a superior customer experience. We never use technology merely for the sake of the technology itself. We did, however, set the engineers the task of uncovering applications of technology that overwhelm, rather than merely surpass the competition.

“For example we use body panel stamping accuracy that’s 10 times stricter than before, giving unrivalled panel fits, strength and longevity. It also helps LS430 to achieve its class leading aerodynamics (Cd 0.25), which in turn reduces wind noise levels. To achieve the most efficient shape, we made use of the latest wind tunnel

developed for the Japanese bullet trains, which also allowed us to analyse the generated wind noise very precisely.

“There is a shift away from volume marques into premium marques. Individuality is a big opportunity. With the Lexus marque, Toyota is one of the few world players to build that in-house, rather than by acquisition. The product is only one issue. Brand communication and the dealer network are vital to future Lexus success.

“Experience from the USA clearly demonstrates that Lexus dealer networks and customer service offer a significant opportunity to occupy higher ground than many more established marques. We are beginning to achieve that in Europe too, with levels of customer service and customer satisfaction that are the highest in the industry.

“Thanks to the development of a wider model range with the IS, GS and now also RX, Lexus sales have more than doubled year on year, from 3,521 in 1997; to 7,348 in 1998 and 16,308 in 1999. We are heading for a 400% increase in three years’ time. This inevitably leads to more awareness.

“Lexus products exhibit more individual model styling with fewer ‘family’ links than some of our German competitors. That is because we believe that every segment has its own type of buyers. In the case of Lexus, the family link lies in the particular attention we pay to detail and quality.

“Our development of the Lexus LS range has often been referred to as the ‘relentless pursuit of perfection” said Mathews. “In the case of the all-new LS430 this could be revised to ‘the passionate pursuit of perfection’. There isn’t a single area of this car in which we haven’t asked ourselves what we can do to deliver a superior customer experience.”

LEXUS LS430 TECHNICAL SPECIFICATIONS

ENGINE	
Engine Type	3UZ-FE
Valve Mechanism	Twin-cam, 32 valve, VVT-i
Block Material	Aluminium
Head Material	Aluminium
Displacement (cc)	4,293
Bore x Stroke (mm)	91 x 82.5
Compression Ratio	10.5:1
Fuel Injection Type	EFI, L-Jetronic

Ignition System	Transistorised
Octane Rating	95 or more
Max. Power (kW) DIN hp/rpm	(207kW) 281@5600
Max. Torque (Nm/rpm)	417@3500
ACCELERATION (sec)	
0-62mph	6.7
0-400m	14.7
Max. speed (mph)	155
DIMENSIONS	
Overall length (mm)	5005
Overall width (mm)	1830
Overall height (mm)	1490 (coil suspension)
	1470 (air suspension normal mode)
Wheelbase (mm)	2925
Tread (mm) front	1570 (coil suspension)
	1575 (air suspension)
Tread (mm) rear	1570 (coil suspension)
	1575 (air suspension)
Overhang (mm) front	845
Overhang (mm) rear	1235
Coefficient of Drag (Cd)	0.25 (0.26 without air suspension option)
Minimum turning radius (m)	5.2
Fuel tank capacity (L)	84
Luggage capacity (m3)	0.552
INTERIOR DIMENSIONS	
Interior room length	2080
Interior room width	1535
Interior room height	1210 w/o moon roof
	1165 with moon roof
WEIGHTS (kg)	
Kerb weight	1830-1920
Gross vehicle weight	2350
Towing capacity (kg)	2000 (w/brake)
Towing capacity (kg)	750 (w/o brake)
TRANSMISSION	
Type	A650E
Gearbox type	Automatic Super ECT
Gear ratios	
1st	3.357
2nd	2.180
3rd	1.424
4th	1.000
5th	0.753
Reverse	3.431
Differential Gear Ratio	3.266
FUEL CONSUMPTION (mpg)	
Combined	23.5
Extra Urban	31.7
Urban	16.1
SUSPENSION	
Front	Double High mount double wishbone

	Low pressure (N2) gas sealed shock absorbers
	Stabilizer bar
Rear	Double wishbone with L-shaped upper arm
	Low pressure (N2) gas sealed shock absorbers
	Stabilizer bar
BRAKES	
Front (mm)	Ventilated disc (315x30)
Rear (mm)	Ventilated disc (310x16)
Parking Brake Type	Duo Servo, Drum brake incorporated in disc rotor
Master Cylinder Type	Tandem
Brake Booster Type	Tandem
Anti-lock Braking (ABS)	Four sensor, four channel ABS with EBD and Brake Assist
STEERING	
Type	Rack and pinion power steering
Ratio	15.7
Power Steering Type	Integral type
Turns (lock to lock)	3.5
TYRES AND WHEELS	
Wheels	Aluminium
Tyre size	225/55 R 17

LEXUS LS430 EQUIPMENT SPECIFICATION

	LS430	**LS430 with President Package**
Comfort		
Air purifier	O	S
Climate control air conditioning	S	S
Air suspension with AVS (Adaptive Variable Suspension)	O	O
Clearance and back sonar system (6 sonars in front bumper and 4 in rear)	O	O
Cruise control	S	S
D+P power adjustable seat belt anchors (memory on D-side)	S	S
D+P + rear seat heaters	S	S
Electric sunshade for rear windscreen	S	S
Electric front seats	S	S
EMV and Navigation system	O	O
Front seat A/C	O	S
Leather seats	S	S
LW-MW-FM Radio cassette 7 speakers RDS	S	-
LW-MW-FM Radio cassette 9 speakers RDS	-	S
Mark Levinson audio: LW-MW-FM Radio cassette 9 speakers RDS EMV	O	O
Memory package (with 3 settings for seat, mirrors and steering wheel)	S	S

Rear A/C	-	S
Rear audio control panel	-	S
Rear headrests electrically adjustable in height with memory	-	S
Rear seat with slide and recline function	-	S
Rear seat massager	-	S
Smart key system	O	O
Sunshade for rear side windows	-	S
SAFETY & SECURITY		
ABS + EBD and Brake Assist	S	S
Child restraint (2 Isofix)	S	S
Double locking, alarm and immobilizer	S	S
Front seatbelts with pretensioners and force limiters.	S	S
Outer rear seatbelts with pretensioners	S	S
Front and side airbags for D+P	S	S
Power front headrests	S	S
Side curtain airbags front and rear	S	S
Traction Control (TRC)	S	S
Vehicle Stability Control (VSC)	S	S
Windscreen wipers with automatic rain sensors	S	S
EXTERIOR		
HID lamps with auto levelling and headlamp cleaners	S	S
Front side windows with UV-cut water repellent laminated glass	S	S
UV-cut rear window with in-built audio antenna	S	S
Electrochromic wide view outer mirrors with memory and reverse auto tilt down function (featuring courtesy lamps)	S	S
Moonroof (one touch open/close function and jam protection)	O	O
TYRES AND WHEELS		
Tyres / alloy wheels 225/55 R17	S	S