

*This press pack accompanied the European media launch of the third generation Lexus IS in May 2013. Changes to the model during its time on sale can be tracked using the Timeline feature on the IS archive web page. More information about the IS range can be obtained from the Lexus press office.*

## **THE ALL-NEW LEXUS IS**

### **European Dynamic Press Launch, Vienna 2013**

#### **1. PRODUCT CONCEPT**

##### **IS history**

In the 1990s Lexus needed a new model that could compete in Europe's growing premium compact saloon market, which at that time was amassing around 900,000 sales a year. Its larger LS and GS ranges were doing well in leading the brand's development, but the company lacked a smaller model that could give it wider market reach.

The solution came in 1999 with the introduction of the IS, a more compact Lexus designed to bring younger customers to the brand with its stylish design and sporting driving performance. The IS showcased Lexus's core brand attributes and served as a potential stepping-stone for customers who would go on to upgrade to the GS and LS.

The first generation model provided strong styling, agile, engaging handling, smooth and powerful engines and the quiet ride and luxury that define Lexus. It introduced new 2.0 and 3.0-litre engines and a six-speed manual transmission, powertrains that brought a

new sportiness to the Lexus range, while maintaining segment-leading safety performance.

The second generation IS, launched in 2005, benefited from Lexus's distinctive and sophisticated L-finesse design philosophy. Interior quality was improved, too, and the IS took a lead in its class with its clever deployment of new technologies and advanced equipment features.

Adding a new 2.5-litre V6 engine to the range sharpened driving performance further, together with a new automatic transmission. The line-up also gained Lexus's first diesel engine, reinforcing its appeal among business motorists.

This IS also spawned the IS F, the first Lexus to wear the F performance badge. This was a new breed of Lexus, a car built by enthusiasts, for enthusiasts. Its 5.0-litre V8 engine delivered 417bhp and it was fitted with the world's first eight-speed automatic transmission. The result was 0-62mph in 4.8 seconds and a top speed limited to 168mph. Perhaps more importantly its handling was tuned through extensive testing on race circuits around the world and through the use of many exclusively developed components, including engine, transmissions, suspension, wheels and tyres.

There was a further variation on the IS theme in 2009 with the introduction of the IS C, a coupe-convertible equipped with the world's fastest folding three-part metal roof.

More than 740,800 IS have been sold worldwide since the original model was launched. In Europe sales have passed 151,000 units, with almost half of these in the UK.

### **Development concept**

Every aspect of the new IS has been engineered to endow the car with sporting performance, agile handling, accurate responses and excellent feedback to the driver.

The exterior styling features a new interpretation of Lexus's spindle grille design, giving the IS emphatic elegance, greater road presence and a stronger brand identity.

The interior is all-new too, while maintaining the refinement and quality that are fundamental to Lexus, but introducing a more sporting, focused environment for the driver. Best-in class accommodation has been achieved with a significant improvement in rear-seat knee-room; the boot has also been made larger and more user-friendly.

The new IS's driving dynamics have been painstakingly engineered to help deliver segment-leading driving enjoyment – a principal goal in the car's development programme.

New laser screw welding and adhesive body bonding techniques and extra spot welding have increased overall body rigidity, while revisions to the double wishbone front suspension have brought about a 20 per cent increase in roll rigidity. There is a new multi-link rear suspension, similar to that used by the latest generation Lexus GS.

A new Drive Mode Select system lets the driver choose between up to five modes – Eco, Snow, Normal, Sport/Sport S and Sport S+ (the latter on the IS 300h F Sport fitted with optional Adaptive Variable Suspension) – to achieve their preferred balance of economy, comfort, performance and handling characteristics. The full hybrid IS 300h also enables selection of all-electric EV mode.

Two version of new IS are available: the IS 250 with a 2.5-litre V6 petrol engine, and the IS 300h, the first IS to feature Lexus Hybrid Drive. Both are rear-wheel drive and can be specified with a new F Sport specification.

The IS F Sport models not only come with exclusive styling elements, inside and out, they also gain genuine dynamic enhancements thanks to retuned front and rear suspension. The IS 300h F Sport additionally comes with optional Adaptive Variable Suspension.

The full hybrid IS 300h's drivetrain combines a powerful electric motor with a newly developed 2.5-litre four-cylinder Atkinson cycle petrol engine. The engine uses a new D-4S fuel injection system, Dual VVT-i intelligent variable valve timing and a high efficiency exhaust gas recirculation system. In the IS 300h SE the system delivers class-leading 99g/km CO<sub>2</sub> emissions and combined cycle fuel consumption of 65.7mpg.

Lexus is offering several new active safety features on IS, including a blind spot detection system with Rear Cross Traffic Alert (on Premier grade models).

All models are equipped with a new pop-up hood design that creates space for better absorption of pedestrian impact forces while also maintaining the lowest possible front profile for the vehicle.

## **2. DESIGN AND PACKAGING**

- All new exterior with Lexus spindle grille and L-shaped daytime running lights
- Rear wheel arch hemming treatment and laser-brazed roof structure enhance the elegant look
- New interior with LFA-inspired driver cockpit

- Significantly more rear seat space, 60:40 split-folding rear seats (excluding IS 300h SE), and uncompromised luggage capacity

## **Exterior design**

The advances made in the new IS's dynamic capabilities and driving performance are reflected in the car's powerful design, with its sleek surfacing and tight, sporting proportions.

Measuring 4,665mm overall, the new model is 75mm longer than its predecessor. Just 5mm have been added to the front overhang, while the wheelbase has been extended by 70mm to 2,800mm. The car is 10mm wider than before, too.

Following the latest GS and LS models, new IS gains the sophisticated dynamism of Lexus's spindle grille frontal design, giving the IS emphatic elegance, greater road presence and a stronger brand identity.

The grille design has been given a stronger three-dimensional quality, its shape accentuated by a chrome plated frame and projection of its upper horizontal bars in a line that follows the curvature of the front of the vehicle.

The grille is flanked by headlamp clusters which, true to Lexus's unique design characteristic, are set on a higher plane than the grille itself. The result is to focus the eye on the apex of the vehicle, giving the design a resolute look and strengthening the overall impression of power and agility.

The powerfully articulated headlamp units have a single projector design; all models feature high-intensity discharge (single xenon) lamps. In another first for a Lexus model,

the LED daytime running lights are located independently beneath the cluster. Set in the trademark Lexus L-shape, they give the new IS a highly distinctive visual signature.

The deep front bumper design anchors the muscular front wings and flared wheel arches. The integral fog lamps are housed in secondary, sculpted side air intakes which control the flow of air through the wheel arches, improving the vehicles' aerodynamic performance.

The overall dynamic shape of the body is generated by the spindle grille: it widens across the bonnet, passes through the base of the front pillar, then tightens as it flows towards the rear. Not only does this clearly delineate the body from the cabin, it also emphasises the wide flare of the wheel arches, creating a powerful rear stance.

In profile the strong horizontal belt line creates the impression of larger rear tyres and a lowered centre of gravity. The mass of the cabin appears to be concentrated rearwards, suggesting more weight over the rear tyres and the perception of greater traction. A rising crease line flows from the lower body, through the rear wheel arch into the rear lamp clusters, adding further dynamism to the saloon's profile.

The rear lamp clusters incorporate an aero-stabilising fin – a small but telling detail in smoothing airflow and promoting better handling – and feature the trademark Lexus L motif.

The clean, coupe-like lines are further enhanced by two Lexus firsts: a hemming treatment for the rear wheel arches that allows the tyre to be placed further outboard, closer to the wheel arch; and a laser-brazed roof structure which joins the roof and side members without the need for an unsightly roof drip moulding.

## **Interior design**

The clean, horizontal theme of the new IS's interior design is bisected by the strong upward sweep of the centre console. This creates a snug, focused and ergonomically ideal environment for the driver, encouraging full exploitation of the car's driving dynamics.

The new quilted finish to the driver's seat gives greater comfort and lateral support, and the seat's hip point has been lowered by 20mm. The new three-spoke steering wheel is inspired by Lexus's LFA supercar, and has reshaped paddle shift switches for easier and more accurate operation. The wheel-mounted switchgear also displays improved ergonomic design.

The steering wheel angle has been lowered by three degrees and its reach adjustment has been increased by 23mm, creating a more sporting driving position. At the same time, the windscreen wiper rest position has been lowered by 15mm, so the driver can enjoy the same angle of vision as in the current IS.

Rear seat occupants enjoy a more comfortable environment, thanks to 50mm of the 70mm increase in the wheelbase being dedicated to extra space in back. The longer wheelbase and a thinner front seat design combine to give 85mm more knee room, while an extra 20mm in the gap between the centre pillar and the front corner of the rear seat makes for easier access.

Because the hybrid battery is located beneath the luggage deck board, occupying a space normally occupied by a spare wheel, there is 450 litres of load space (compared to 480 litres in the IS 250). Extra space has been gained on all versions, thanks to a 20mm increase in load compartment length.

Throughout the interior the use of high quality materials and finishes conveys a contemporary, premium look and feel, with the craftsmanship and attention to detail for which Lexus is renowned. Soft-touch finishes abound, including kneepads either side of the centre console.

The silver metallic trim detailing on the instrument meter is complimented by a precision machined analogue clock with surface-emitting illumination.

Human-oriented interior design is a fundamental part of the L-finesse design philosophy, reflected in the way the IS's dashboard is divided into distinct display and operation zones.

The upper display zone houses a seven-inch LCD multi-display screen, set at an ideal distance for at-a-glance viewing from the wheel. The lower operation zone gives access to system controls, including Lexus's second generation Remote Touch Interface.

The new IS follows the latest GS and LS in adopting a Drive Mode Select system, and a change in meter illumination from blue to red when sports driving modes are engaged, along with the automatic switch from a hybrid system indicator to a tachometer in the IS 300h F Sport.

Lexus's first electrostatic switches for controlling the air conditioning are located in the centre console, operated with just a touch of the finger. Models are equipped (according to grade or option specified) with either the Lexus Media Display or Lexus Premium Navigation pack; the steering wheel is the first in a Lexus to co-ordinate multimedia system control with both meter and centre console displays.

## **Wheels, colours and trims**



Four alloy wheel designs are offered on the new IS with five-spoke 16-inch rims standard on the SE models, 17-inch 10-spoke for the Luxury, 10-spoke 18-inch for the F Sport and five-spoke 18-inch for the Premier grade.

Ten exterior paint finishes are offered: Arctic Pearl, Satin Silver, Sonic Titanium, Mercury Grey, Mesa Red, Ultra Blue, Atlantic Blue, Velvet Black (solid) and Celestial Black, plus the grade-exclusive F Sport White.

Sonic Titanium uses a new advanced coating process developed by Lexus engineers that makes the car appear more radiant. An additional metallic texture provides strong shading and sharply defined highlights, making the bodylines more noticeable and the surfaces finely polished.

According to grade, seats are finished in a combination of black fabric with Tahara bolsters (SE, Luxury and F Sport) or black leather (Premier). Leather can be specified for the Luxury (ivory, grey or black) and F Sport models (black and a new Dark Rose).

### **3. ON-BOARD TECHNOLOGY**

- Dual-zone air conditioning with touch-sensitive electrostatic switches
- Lexus Media Display and Lexus Premium Navigation systems with Remote Touch Interface
- Lexus-first steering wheel co-ordination of multimedia system with both meter and centre console displays
- Mark Levinson Premium Surround System with new loudspeaker technology

#### **Dual-zone air conditioning with electrostatic switches**

The new IS's dual-zone air conditioning system incorporates a compact, high cooling performance expansion valve. Power usage has been greatly reduced, which contributes to better fuel economy.

It is controlled using Lexus's first electrostatic switches: sliding a fingertip up or down the bar-shaped switch will adjust temperature in half-degree Centigrade or one-degree Fahrenheit increments. Alternatively arrow markings on the top and bottom half of the switch can be pressed.

The air conditioning also has a customised blower function, so users can set a default airflow when the system is on auto, choosing from fast, medium or soft settings. A new full-screen display in the Lexus Media Display has been added to confirm the operating status.

### **Advanced multimedia systems**

Two multimedia systems are available in the new IS, both working in conjunction with a high-resolution seven-inch full colour display.

The Lexus Media Display (standard on SE, Luxury and F Sport grades) is operated using an eight-way joystick control.

The new generation Lexus Premium Navigation (standard on Premier grade and an option on all others) provides USB, Aux, Bluetooth and WiFi connectivity and improved HMI features. Steering wheel controls can be used to co-ordinate control of the system with both the 4.2-inch meter and seven-inch centre console displays.

Enabling the Lexus Premium Navigation system to be linked to the monitor in the meter display allows the driver to view audio data, mobile phone reception and incoming call

information, as well as navigation directions. The cross switch on the wheel can be used to select music tracks and place outgoing calls.

The integral navigation system's CPU has about four times the processing power of the current system. It provides automatic screen zoom at intersections and a number of advanced functions including a true 3D view with city model and landmark graphics; accurate replication of motorway signage; speed limit information; and a new Doppler Weather Radar display.

Access can be gained to an on-line Points of Interest search from Google Local Search, with connection via a Bluetooth mobile phone. This also allows addresses from Google Maps to be downloaded as navigation destinations.

Lexus Connected Services has collaborated with INRIX to provide the new IS with the world's first parking navigation service, with real time traffic and parking services fitted as standard.

Lexus Connected services also provide two new Google link functions: Google Street View and Panoramio, a photo-sharing service that allows images to be uploaded for viewing on the centre console display.

### **Second generation Remote Touch Interface**

The Lexus Premium Navigation is operated using the second generation of Lexus's Remote Touch Interface multi-function control, which has been revised for easier, more intuitive operation.

It uses the world's first slide haptic joystick mechanism – a slide-type controller that is much like a computer mouse, helping users scroll quickly and easily across the display screen. The enter command is now made simply by pushing the controller. Adding ambient lighting and minimising the height difference between the controller and the armrest have helped make it easier and more comfortable to use.

### **Premium sound system**

A Premium Sound System is fitted as standard to the SE, Luxury and F Sport versions of the new IS, featuring a fully digital, Class-D, eight-channel amplifier that create virtually distortion-free sound with minimal voltage losses. The natural sound dynamics and rich harmonies generated by the high definition amplification are faithfully reproduced by an improved eight-speaker layout with a new 55mm wide-range tweeter.

The system provides better functionality and interface quality for connecting digital music players such as iPods. Using a USB port, an iPod menu can now be accessed using switches on the steering wheel, with album cover art displayed on the 4.2-inch meter display.

### **Mark Levinson Premium Surround System**

A Mark Levinson Premium Surround System is fitted as standard to the new IS Premier models and can be specified as an option on F Sport models. Mark Levinson has worked in exclusive collaboration with Lexus for the past 12 years, engineering sound systems to suit the specific acoustic qualities of each individual model.

The latest system has been four years in development. It creates sound based on the concepts of Effortless Dynamics and Effortless Transient Response, which combine natural dynamics with high response and tracking performance to deliver sound quality equivalent to a live concert hall performance.

Using the same technologies as those found in top-end home audio systems, it features a 12-channel, fully digital Class-D amplifier generating 835 Watts through 15 GreenEdge high-efficiency loudspeakers. The new Auto Volume system automatically adjusts volume for each track to ensure consistent levels and full audibility for even the quietest passages of music.

All 15 speakers use power-saving GreenEdge technology, developing twice the volume for the same power consumption. GreenEdge covers a wider frequency band than conventional systems, giving an enhanced dynamic range.

Three new 90mm GreenEdge speakers are mounted at the front of the cabin, with Unity technology which integrates mid and high-range units within the same structure. Two further 90mm GreenEdge units at the rear feature Wide Dispersion technology, with built-in acoustic lenses to disperse the sound more evenly throughout the cabin. Together these five speakers give consistent timbre for both front and rear seat occupants, resulting a new a level of surround sound, definition, atmosphere and quality.

A new 200mm GreenEdge subwoofer uses the latest Inverted Motor Structure technology, in which the magnetic circuit s mounted in an inverted position, significantly reducing the depth of the unit with no loss of power or acoustic performance, while offering significant space savings in system packaging.

#### **4. POWERTRAINS**

- IS 300h, the first IS to feature Lexus Hybrid Drive, incorporating a new 2.5-litre Atkinson cycle petrol engine
- CO<sub>2</sub> emissions from 99g/km and fuel consumption from 65.7mpg (IS 300h SE)
- Sequential Shiftmatic with paddle shift controls on the IS 300h, giving a manual transmission shift feel for a more engaging driving experience

## **IS 300h**

The IS 300h reinforces Lexus's commitment to the future of hybrid drive technology. It is powered by the latest generation Lexus Hybrid Drive, which achieves significant reductions in fuel consumption CO<sub>2</sub>, NOx and particulate emissions, with no loss of performance.

The full hybrid system combines a 105kW/141bhp electric motor with a new 2.5-litre, 133kW/178bhp four-cylinder Atkinson cycle petrol engine, equipped with next-generation D-4S fuel injection, Dual VVT-i intelligent variable valve timing and high efficiency exhaust gas recirculation.

The system drives the rear wheels via an electronically controlled continuously variable transmission. Total system output is 164kW/220bhp, enabling nought to 62mph acceleration in 8.3 seconds (IS 300h SE) and a 125mph top speed. Combined cycle fuel consumption is 65.7mpg with class-leading CO<sub>2</sub> emissions of 99g/km (IS 300h SE).

## **Lexus Hybrid Drive system architecture**

As with all Lexus hybrids, the new IS 300h is a full hybrid that can be driven in petrol or purely electric modes alone, as well as a combination of both. Its Lexus Hybrid Drive features a new 178bhp/133kW. 2.5-litre, four-cylinder petrol engine mated to a compact, high-output 141bhp/105kW water-cooled permanent magnet electric motor. The two powerplants drive the rear wheels both independently or in tandem, as conditions require.

In addition to the petrol engine and electric motor, the hybrid drive system also comprises a generator, a high-performance nickel-metal hydride battery, a power split device which combines and reallocates power from the engine, electric motor and

generator as required, and a compact power control unit that governs the high speed interaction of the different components.

### **2.5-litre Atkinson cycle petrol engine**

The 2,494cc four-cylinder petrol engine has been newly developed specifically for the IS 300h's hybrid powertrain. It benefits from several advanced technologies and uses the Atkinson cycle to optimise Lexus Hybrid Drive's fuel efficiency.

In an Atkinson cycle engine, compression and expansion are not symmetrical; the valves close late, delaying compression. This creates a high expansion ratio for less compression, reducing intake and exhaust energy losses and converting combustion energy to engine power more effectively.

A new exhaust gas recirculation system, with a high efficiency, large capacity cooler and high response valve, reintroduces precisely measured exhaust gas, cooled from around 700 to 130°C into the intake system, via a stainless steel exhaust manifold. This further reduces engine operating temperatures while also reducing engine pumping losses by bringing down intake vacuum pressure.

Together these technologies minimise the situations when fuel enrichment is needed to protect the catalytic converter from overheating damage, thereby improving fuel economy and emissions.

Further reductions in fuel consumption have been achieved through a high physical compression ratio of 13.0:1; by optimising the shape of the intake port and combustion chamber; the use of low friction piston rings, roller arm type valve gear and a variable discharge volume oil pump; and the adoption of next generation D-4S direct injection technology.

D-4S is the latest evolution of Lexus's stoichiometric, four-stroke direct injection technology. With one injector in the combustion chamber and a second in the intake port, it combines the strengths of both direct and port injection, realising optimum engine efficiency across the power band and improving torque at all revs, while minimising fuel consumption and emissions.

The D-4S system uses new slit-type injector nozzles with an optimised injection hole shape; a higher, 18MP injection pressure for more efficient combustion; and idle port injection that improves NVH performance.

Using Dual VVT-I intelligent variable valve timing on both intake and exhaust camshafts also significantly improves engine performance. Being able to control the camshafts through angles up to 40 (intake) and 35 (exhaust) degrees, the system permits a greater overlap of the intake and exhaust valves. This benefits low and top-end torque as well as contributing to a reduction in exhaust emissions and better cold-start performance.

Engine noise, vibration and friction have also been lowered by using a low friction timing chain, a highly elastic stretch belt, optimisation of the crankshaft shape and balance shaft, and the use of plastic gears.

### **Hybrid transaxle**

The electric motor, electric generator, power split device and motor speed reduction device are housed in a single, lightweight and very compact transmission casing that is comparable in size to a conventional gear box. This transaxle is the heart of Lexus Hybrid Drive.



The seamless electronically controlled continuously variable transmission can be switched to a sequential shiftmatic mode, operated using paddle shifts in the steering wheel, giving a manual shift feel for a more engaging driving experience.

### **Electric motor**

The 105kW high performance electric motor (permanent magnet, synchronous type) works in tandem with the petrol engine to boost acceleration, and powers the driven (rear) wheels on its own when the vehicle is running in EV mode. During regenerative braking, the motor also operates as a high-output generator, recovering kinetic energy as electricity to charge the hybrid system battery.

The motor generates a maximum 300 Nm of torque, boosted through a reduction gear in the transaxle. This significantly enhances acceleration from standstill.

### **Generator**

Like the electric motor, the generator is AC synchronous. It performs a number of different functions within the Lexus Hybrid Drive system.

As the system doesn't have a starter motor, the generator is used to start the petrol engine. In normal driving conditions, engine output is divided according to system requirements, both to drive the wheels and power the generator, which, via the power control unit, drives the electric motors and simultaneously charges the high-voltage battery. Moreover, the generator is also used to control engine speed for maximum fuel efficiency.

When the hybrid system doesn't require the engine to operate, the generator is used to stop it. But if the IS 300h runs on its electric motor long enough to require battery

charging, the generator will automatically start the engine, which itself provides the power for the generator to charge the battery.

### **High-output battery**

The Lexus Hybrid Drive's 230V battery uses proven and reliable nickel-metal hydride technology and enables the IS 300h to be driven in EV mode, using electric motor power alone.

For the first time in a Lexus, the hybrid battery has been installed in a reinforced compartment beneath the loadspace floor, without compromising the space available for luggage.

### **Power control unit**

The power control unit is little larger than a 12V battery. Modifications to its structure and materials have reduced its weight and size; the PCU in the new IS 300h is 20 per cent lighter than before.

The unit consists of a voltage boost converter, which boosts the electric motor, generator and battery voltage to increase hybrid system power output; a highly compact inverter for the motor/generator, which converts DC power from the battery into 650V AC power for driving the electric motor and, occasionally, the generator; and a DC/DC converter, which reduces the high voltage of the hybrid system battery to 12V, supplying power to the accessory systems and charging the auxiliary battery.

### **Lexus Hybrid Drive in operation**

Over the course of any journey Lexus Hybrid Drive operates in different modes to maximise efficiency. At rest the engine automatically stops to conserve fuel. When

efficiency is at its lowest, such as at start-up and at low to mid-range engine speeds, the IS 300h will run on its electric motor alone, eliminating CO<sub>2</sub>, NO<sub>x</sub> and particulate emissions.

In normal driving conditions, the allocation of power is constantly adjusted between the engine and electric motor to achieve the best balance of performance and fuel efficiency. The electric motor acts as a high-output generator during deceleration and under braking to effect regenerative braking; this optimises energy management by recovering kinetic energy (that would usually be lost as heat) as electric power for storage in the hybrid system's battery.

At all speeds Lexus Hybrid Drive monitors itself to ensure the best combination of performance and fuel efficiency with least emissions, either running the electric motor or engine alone, or together. The level of battery power is constantly managed by using the engine-driven generator. This means the system doesn't have to be recharged using an external power supply.

As full described in the Driving Dynamics section below, the IS 300h has a new Drive Mode Select system, increasing the vehicle's capabilities beyond the Normal driving mode. An EV mode permits near-silent running on electric motor power alone, which means zero fuel consumption and tailpipe emissions. An Eco mode maximises efficiency and fuel economy; Sport/Sport+ mode boosts full hybrid system performance, while a Snow mode modulates throttle response to give the best possible traction and stability when pulling away on slippery surfaces.

### **Sequential Shiftmatic**

The E-CVT can be switched to a sequential shiftmatic mode using paddle shifts on the steering wheel. The system has been tuned so there is a closer match in the increases

in engine and vehicle speeds, and to deliver engine braking force in six steps under deceleration, with a shift feel like that of a manual transmission.

### **Active Sound Control**

The driving experience is further enhanced by another Lexus-first, Active Sound Control. This new technology compliments the sound of the engine with an audio feed through a dedicated loudspeaker. Active Sound Control delivers the sound of acceleration and deceleration, even when the engine in the hybrid system is switched off and the car is being powered only by the electric motor. It is automatically deactivated when Eco or EV mode is selected.

### **IS 250**

The new IS 250 uses the chain-driven DOHC 24-valve 2.5-litre V6 petrol engine featured in the previous generation model, a unit that is notably compact and lightweight. Features that contribute to its low weight include an aluminium die-cast cylinder block and intake manifold and a rein intake chamber. More weight has been saved in the overall assembly by installing the water and oil pumps in the chain cover.

The V6 unit uses D-4 direct fuel injection and Dual VVT-i intelligent variable valve timing for both the intake and exhaust camshafts, enhancing its performance. It develops 153kW/205bhp AT 6,400rpm and 252Nm of torque at 4,800rpm. Acceleration from 0-62mph can be accomplished in 8.1 seconds and the top speed is 140mph. Combined cycle fuel consumption is 32.8mpg for the IS 250 SE and Luxury versions, 30.7mpg for the F Sport and Premier.

### **Six-speed Super Electronically Controlled Transmission**

The IS 250's 6 Super ECT close-speed automatic transmission features a sequential manual shift mode. It makes use of technologies to achieve faster shift speeds, earlier

torque converter lock-up and downshift throttle blip, supporting the range of drive modes available through the Drive Mode Select system.

## **5. DRIVING DYNAMICS**

- New laser screw and adhesive body bonding techniques for a substantial increase in overall body rigidity.
- Use of hot stamped and high-tensile sheet steel and aluminium reduce body weight by 10kg
- Revised front suspension with 20 per cent increase in roll rigidity, new rear multilink suspension for increased grip and stability
- New electric power steering system gives lighter, smoother and more accurate feel with greater feedback
- New Drive Mode Select for IS, allowing vehicle operation to be optimised for economy, comfort, performance or handling.
- Adaptive Variable Suspension – an option on the IS 300h F Sport – allows ride characteristics to be fine tuned

A segment-leading driving experience has been the principal aim of the IS development programme, but not at the cost of the quietness and comfort inherent in all Lexus vehicles. To achieve this every aspect of the car's driving dynamics has been painstakingly engineered.

The new bodyshell is lighter but more rigid than its predecessor. The front suspension has been revised and a new format adopted at the rear, to give better grip and response to steering inputs. A new steering system offers a lighter, smoother and more accurate feel with improved responsiveness and feedback to the driver.

The new Drive Mode Select system features up to five switchable driving modes: Eco, Snow, Normal, Sport/Sport S and (on the IS 300h with optional AVS) Sport S+. Where specified, the Adaptive Variable Suspension system lets the driver fine tune vehicle ride

with a choice of Normal or Sport S+ modes. A drive mode controller is used for selecting Eco, Normal Sport/Sport S and Sport S+, while adjacent switches are used for engaging EV and Snow modes.

## **Bodyshell**

Overall bodyshell rigidity has been increased in the new IS thanks to new laser screw and adhesive body bonding techniques, along with additional spot welding. This improves stability and body control while also allowing for a more comfortable ride without detracting from handling agility.

Comprehensive use of body adhesives plays a major part in the new IS's improved handling. Rather than joining panels at specific points, as with spot welding, the body adhesive technique forms a bond along the entire surface of joined panels, maximising joint rigidity. The new IS uses more than 25 metres of body adhesive, which has a significant effect on body rigidity and the bodyshell's vibration damping performance.

Laser screw welding is applied to the door apertures and upper back panel. This new technique achieves a fine pitch that isn't possible with spot welding, joining a larger panel area that gives better suppression of cross-sectional deformation.

Handling stability and steering response are further improved by the use of a new rear subframe, cowl side braces to connect the front pillar and apron member, and underbody rigidity measures including a new radiator support and optimised bracing to the front and rear of the transmission tunnel.

Weight reduction was another important goal. Using hot stamped and high tensile steel sheets for reinforcements and other critical components combines strength and

structural simplicity with weight-saving. Allied to the use of aluminium in other areas, including the bonnet, has helped make the bodysell 10kg lighter than its predecessor.

## **Suspension**

The new IS has a revised double wishbone front suspension system and a new multi-link system at the rear, similar to that used in the latest generation Lexus GS. Both have been tuned to match the driving feel of the new Lexus, giving improved ride comfort, grip and response to steering inputs.

At the front revisions have been made to the upper support hub and bearing, the anti-roll bar and its link and bushing, and the lower arm. The anti-roll bar layout has been revised and the bar's rigidity has been increased by 20 per cent to reduce roll during cornering. To compensate for this extra rigidity the coil spring rate has been lowered, improving ride comfort.

Roll rigidity distribution has been increased to help optimise steering response and stability during emergency manoeuvres. In addition, rigidity of the front lower arm No1 bushing has been doubled to improve yaw response during steering.

The new multilink rear suspension locates the coil springs and shock absorbers separately. This increases shock absorber efficiency, giving better ride comfort. This modified layout also increases the pitch between the suspension towers, giving more space in the luggage compartment.

The multilink design has been substantially revised for installation in the new IS, with changes to the upper and lower arms, toe control arm, upper support, shock absorber, carrier, hub bearing and anti-roll bar.

The characteristics of the bushing and sliding parts in the shock absorber have been optimised by using a lightweight, resin-free piston with a sliding ring. This achieves a 53 per cent reduction in suspension friction. Also, by locating the toe control arm at the back, tyre grip has been increased by about 15 per cent when cornering.

## **Steering**

The quality of steering feel and feedback is fundamental to an enjoyable driving experience. To this end, the IS's new electric power steering benefits from a steering gearbox based on that used in the latest GS, with a number of tuning measures.

With particular attention paid to achieving a clear sense of the neutral steering position, the structure and rigidity of each component have been revised to achieve a lighter, smoother and more accurate steering feel, with better response to inputs and feedback to the driver.

The power steering gear's stroke ratio has increased by about eight per cent, changing the rack stroke per pinion turn to 55.6mm. The rack bushing rigidity has been increased by four times over the previous model and rack end bushing wear has been reduced. Using floating end bushings gives better response to minor steering adjustments. Within the steering gearbox, the rigidity of the pinion gear support has been increased and the ball screw structure has been modified for smoother motor torque transfer.

Together with these comprehensive improvements, the steering's assist characteristics have been optimised to enhance the vehicle's dynamic performance and steering feel.

## **Brakes**

The IS has a completely new brake system, designed for the quick response, linear effectiveness and controllability appropriate for a Lexus sports saloon.



The IS 250 and IS 300h both use 296 x 28mm ventilated front discs; at the rear the IS 250 has 290 x 10mm solid discs, while those on the IS 300h measure 290 x 18mm. All versions feature aluminium alloy callipers.

Experienced gained engineering the Lexus LFA was used in the design of the compact, lightweight master cylinder and stroke simulator. Brake booster power has been optimised to enhance brake effectiveness and controllability, and the pedal shape, angle and ratio have been changed so an instant response can be given to changes in pedal force.

Better brake cooling performance has been gained by adopting straighter brake ducts that give a larger cooling airflow volume, minimising brake face, even under protracted use.

### **Drive Mode Select**

The IS's new Drive Mode Select system features up to five switchable driving modes: Eco, Snow, Normal, Sport/Sport S and (on the IS 300h with optional AVS) Sport S+, allowing the driver to adapt the vehicle for their preferred combination of economy, comfort, performance and handling characteristics. A drive mode controller is used for selecting Eco, Normal Sport/Sport S and Sport S+, while adjacent switches are used for engaging EV (in the IS 300h) and Snow modes.

In Eco mode engine output, throttle opening and gear selection are automatically modulated to optimise fuel efficiency in all driving conditions. The air conditioning system temperature and airflow volume are also co-operatively controlled, further reducing fuel consumption.

Snow mode adapts throttle response to gain the best traction and stability when pulling away from start-up on slippery surfaces.

In Sport mode, engine speed and throttle responses are sharpened for a more engaging driving experience and full exploitation of the new IS's capabilities – in the case of both petrol and full hybrid powertrains.

Where Adaptive Variable Suspension is specified as an option on the IS 300h F Sport, Sport S+ mode combines the enhanced powertrain output of Sport/Sport S with co-ordinated control of the AVS and electric power steering to minimise body roll, sharpen handling and optimise steering feel to deliver sporting driving dynamics.

The IS 300h additional offers EV mode, for ultra-quiet running on electric motor power alone, giving zero fuel consumption and emissions.

The ambient lighting of the driver's instruments changes to blue in Eco mode, and to red in Sport/Sport S and Sport S+. And when selecting Sport/Sport S or Sport S+ modes, the IS 300h F Sport's system power indicator is automatically replaced by a tachometer.

### **Adaptive Variable Suspension**

Adaptive Variable Suspension is available as an option on the IS 300h F Sport. The system lets the driver tune the car's handling characteristics with a choice of two damper settings: Normal, for everyday driving comfort; and Sport S+, for improved body control and precise steering responses when cornering.

The system automatically adjusts suspension performance at all four wheels independently, in response to driving operation, vehicle body motion and road surface

conditions, activating the adjustable damping force shock absorbers to fulfil a range of specific control functions.

When Sport S+ mode is selected, the system automatically increases the difference between inner and out shock absorber damping through corners to further reduce vehicle roll.

### **Intake Sound Creator**

The IS 250 F Sport features an intake sound generator which creates a more sporting engine note. It uses a damper to amplify vibration of the intake pulse and introduces it as a pleasing sporty note into the cabin.

## **6. F SPORT**

- Exclusive exterior design elements, including new front-end treatment, LED fog lamps and 18-inch wheels
- Interior features sports seats with Lexus's integrated foaming construction, perforated leather steering wheel and gear lever finish and exclusive trim and colour schemes
- Driving dynamics enhanced with specific tuning of the suspension and electric power steering
- F Sport grade available for both new IS 250 and IS 300h

## **Design**

### **Exterior features**

IS F Sport models are instantly recognisable thanks to their exclusive grille and front bumper design. The waistline of the spindle grille design is set higher, increasing the area of the lower grille so it can draw in a larger volume of cooling air, appropriate for sportier driving.

The grille itself features an F Sport-specific L-shaped mesh pattern and its lower section has a more prominent chrome-plated frame.

LED fog lamps are integrated in the bottom corners of the front bumper, which also has F Sport-exclusive aerodynamic detailing to improve downforce and brake cooling. The F Sport 18-inch alloy wheels have a Y-spoke design and a dark metallic coated finish, linking with the LFA supercar's bloodline.

The IS F Sport models are available in eight exterior colours, including F Sport White and Ultra Blue, exclusive to the grade.

### **Interior features**

The F Sport specification includes the innovative driver's meter with moving centre ring that was first seen in the Lexus LFA. In a Lexus first, the highly supportive front sports seat design uses an integrated foaming construction technique that allows large concave surfaces to be moulded, with no gaps between the seat upholstery and foam padding. The result is excellent comfort and great lateral holding performance.

Bespoke interior trim details include an F Sport steering wheel and gear level finished in perforated leather; metal film 3-D effect ornamentation black seat stitching; and aluminium pedals and scuff plates.

The seats have black fabric centre panels with black Tahara leather-effect bolsters as standard; black or (exclusive to F Sport) Dark Rose leather upholstery can be specified as an option.

## **Driving Dynamics**

The F Sport models benefit from adjustments to the front and rear suspension and the electric power steering to enhance handling without compromising ride quality. As described in the Driving Dynamics section above, Adaptive Variable Suspension is offered as an option on the IS 300h F Sport.

## **7. SAFETY AND DRIVER SUPPORT**

- New features for IS include Blind Spot Monitor, Rear Cross Traffic Alert and Tyre Pressure Warning System
- Lexus-unique Vehicle Dynamics Integrated Management system
- Use of high and ultra-high tensile steel in bodysell provides excellent occupant protection while also reducing vehicle weight
- Lexus's first Pop-Up Hood design provides better pedestrian impact protection while maintaining a sleek, low front profile

The new IS builds on superior safety standards set by its predecessor with the addition of a number of new, advanced safety features.

### **Active Safety**

#### **Blind Spot Monitor and Rear Cross Traffic Alert**

A new Blind Spot Monitor (Premier grade models) uses a rear-mounted radar to detect vehicles travelling in adjacent lanes that cannot be seen in the door mirrors. An indicator light illuminates in the appropriate mirror to alert the driver when another vehicle is detected in the blind spot. If the turn-indicator is operating while a vehicle is in the blind spot, the warning light in the mirror will blink.

The same radar is used for a new Rear Cross Traffic Alert system (Premier grade). This warns the driver of an approaching vehicle when reversing out of a parking place by

triggering a warning light in the corresponding door mirror and sounding a warning buzzer.

### **Auto Location Tyre Pressure Warning System**

The new IS also gains an Auto Location Tyre Pressure Warning System. Standard on all models, this displays the pressure values for each tyre in a display set within the driver's instrument binnacle. When low pressure is detected, the system shows the pressure of the tyre affected in amber, highlighting the figure.

In conventional systems, the warning light will not show which tyre is affected; the Lexus system clearly shows which of the four has low pressure.

As sensor data is received the moment the ignition is turned on, the driver can check pressures are correct before driving off. This not helps fuel economy and tyre wear, it also contributes to safety by helping reduce the risk of a flat tyre or failure.

### **Vehicle Dynamics Integrated Management**

Lexus's unique Vehicle Dynamics Integrated Management is featured on all new IS models, enhancing performance, traction control and vehicle stability.

VDIM uses comprehensive status data from sensors throughout the vehicle to integrate operation of the ABS, Electronic Brakeforce Distribution, traction control and Vehicle Stability Control (VSC) active safety systems with the electric power steering.

Through this integrated control of all the elements related to vehicle movement, including motor torque, brakes and steering, VDIM not only optimises the activation of braking,

stability and traction control systems, but can also further improve the vehicle's kinetic performance.

Where conventional active safety systems are only activated immediately after a vehicle reaches the limit of its dynamic envelope, VDIM operates before that limit is reached. This means the IS's dynamic threshold limits are expanded, while gaining smoother vehicle behaviour at the limit thanks to less obtrusive intervention by the active safety systems.

## **Passive Safety**

### **Body structure**

The new IS has been designed to achieve class-leading safety performance in frontal, off-set, side-on and rear impacts.

Comprehensive use of high and ultra-high tensile steel in the body structure ensures impact loads are channelled and absorbed to minimise cabin deformation in the event of a collision.

Measures that help efficiently disperse forces from a frontal impact include a top/bottom two split laminate front pillar reinforcement structure; a forward projecting rocker structure; and a high-tensile sheet for the rocker outer and door inner reinforcement.

Particular attention has been paid to side impact protection, with ultra-high-tensile steel used for the roof centre reinforcement and for rocker outer reinforcement over a wider area. The inner side of the centre pillar is fabricated in high-tensile steel with hot press sheet steel reinforcement.

Hot press sheet steel is also used for the head rail outer reinforcement, and hot stamp steel for the front door impact beam. The sheet thickness used for the rear door beam has been increased and hard resin reinforcement has been added internally.

The rear bumper reinforcement has been made using new electromagnetic foaming techniques. The caulked structure eliminates the need for bolt fastening, combining energy absorption efficiency with weight reduction. IS 300h models have a high-strength bumper reinforcement and reinforcement bracing above and below the hybrid battery to help protect it in a rear end collision.

### **Pedestrian protection**

To meet current pedestrian impact legislation would have required raising the level of the new IS's bonnet 40mm above the height of the previous model. But a new pop-up hood design allows the lowest possible vehicle front profile to be maintained, while providing excellent safety protection.

A sensor in the front bumper detects when a person collides with the front of the vehicle. Actuators then immediately pop up the hood by about 70mm, creating extra space between the bonnet and engine and allowing the bonnet to deform and absorb the impact from the person's head.

The high-precision sensors and control system ensure the pop-up hood will not deploy should the car collide with a bollard, lamp post or other street furniture.

Further pedestrian protection measures include a readily deformable structure to the front of the hood, reducing impact forces to the pedestrian's thigh bone; a head impact-reducing structure in the fender protector; and a break point in the cowl rear wall which allows it to deform easily and almost completely.



## **Airbags**

All new IS models are equipped with eight airbags: front (dual-stage), side and knee airbags for the driver and front passenger and full-length curtain airbags.

The front airbags have variable force operation, deployed in line with the severity of an impact, as measured by system sensors.

## **8. COST OF OWNERSHIP**

- Lexus Hybrid Drive design for outstanding durability and low maintenance and running costs
- Lexus IS 300h SE delivers excellent fuel economy and emissions, 65.7mpg and 99g/km
- CAP forecasts 37 per cent residual value for new IS 300h Luxury in the UK

The new IS 300h has been engineered for durability and low maintenance requirements. For example, the starter motor and alternator function are integral to the hybrid system and need no servicing or replacement during the vehicle's lifetime; and in place of a conventional timing belt it uses a maintenance-free timing chain. The hybrid battery has been developed with rigorous testing and is designed also to last the lifetime of the car.

With no need to service or replace these parts, customers can save significant sums in component costs alone over a 60,000-mile period.

Lexus Hybrid Drive also has a positive impact on brake wear. Its efficient regenerative braking system delivers the first half of all braking force, significantly reducing pad and disc wear.

Tyre life is also greatly extended. Because hybrid vehicles run with higher pressures, shoulder wear is reduced, while the smooth, linear power delivery and balanced vehicle weight distribution reduce wear on front tyre treads.

The hybrid battery benefits from rigorous assessment for performance and durability, supported by more than 15 years of in-service experience, and is designed to last the lifetime of the car.

This component longevity and reduced servicing labour hours are expected to give the IS 300h maintenance costs that are among the lowest in its segment.

### **Tax benefits**

Thanks to its sub-100g/km emissions performance, the IS 300h SE will benefit from a number of personal and business tax advantages, not least a zero annual road tax (Vehicle Excise Duty) charge.

Low benefit-in-kind company car tax rates mean a 40 per cent tax payer is likely to pay as much as £907 a year less than the driver of a new Mercedes-Benz C220 CDi BlueEfficiency Executive SE over the first three years of ownership\*.

Likewise a business adding the hybrid Lexus to its fleet will appreciate the lower VED, fuel, insurance and service, maintenance and repair costs.

\* Source KwikCarCost April 2013

### **Residual value**

Lexus Hybrid Drive has built a strong reputation for performance and reliability and as a credible, environmentally efficient alternative to conventional petrol and diesel powertrains. This has helped establish strong residual values, reflected in CAP's projected 37 per cent (after three years 60,000 miles) figure for the IS 300h Luxury and 38 per cent for the IS 300h SE.

## **9. UK MODEL RANGE**

- New IS 250 and IS 300h available to order now with customer deliveries from July
- Four equipment grades – SE, Luxury, F Sport and Premier
- On-the-road prices from £26,495

Lexus is offering eight versions of the all-new IS in the UK, with the IS 250 and full hybrid IS 300h available in each of four equipment grades – SE, Luxury, F Sport and Premier.

The entry point to the new range is the SE, which includes the following features in its standard specification: -

- 16-inch alloy wheels
- Drive Mode Select (Normal, Eco and Sport – additional EV mode on IS 300h)
- Cruise Control
- Smart Entry and Start
- Pop-Up Hood
- Dual-zone climate control air conditioning with electrostatic temperature control switches
- Power-folding, heated door mirrors
- Dusk-sensing HID headlamps
- LED daytime running lights
- Tyre Pressure Monitoring System
- Vehicle Dynamics Integrated Management

- 60/40 split rear seats (IS 250 only)
- Six-speaker Lexus display audio with DAB digital tuner and Bluetooth
- Seven-inch multimedia display screen with Remote Touch Interface controller

The feature model of the new IS range is the Luxury, with additional features above the SE specification including: -

- 17-inch alloy wheels
- Front and rear parking sensors
- Rain-sensing wipers
- Auto-dimming rear-view mirror
- 60/40 split-folding rear seats – IS 300h

The F Sport grade introduces sports-themed elements to the interior and exterior, including: -

- 18-inch, 10-spoke F Sport alloy wheels
- F Sport-specific front grille and bumper design
- LED front fog lamps
- LFA-style instrument meters
- F Sport aluminium sports pedals
- F Sport perforated leather trim on steering wheel and gear lever
- Eight-way electrically adjustable, heated front sports seats
- Aluminium cabin trim details

At the top of the range the Premier grade offers the highest standard specifications available, including: -

- 18-inch, five-spoke alloy wheels
- Auto-folding door mirrors
- Eight-way electrically adjustable leather front seats with integrated heating and ventilation functions and memory setting
- Electrically adjustable steering column
- Lexus Premium Navigation with dynamic route guidance, rear-view camera and access to Lexus connected services
- Mark Levinson sound system with 15 speakers, 5.1 channel surround sound, DVD player and DAB digital tuner
- Blind Spot Monitor and Rear Cross Traffic Alert

### Equipment options

A range of options are available for the new IS, giving owners a cost-effective way of building their car's specification to suit their personal preferences.

Black, Ivory and Grey leather upholstery is available for Luxury models, also in combination with eight-way electrically adjustable front seats with heating function. Black and Dark Rose leather are offered for F Sport models, with electric adjustment, heating and ventilation, plus electric steering column adjustment. .

Lexus Premium Navigation can be specified on SE, Luxury and F Sport models, which brings with it eight-speaker audio, DVD player and rear-view camera.

Front and rear parking sensors can be added to SE versions of new IS and a sunroof is available for Premier grade models.

UK model range, prices and VED bands

MODEL	POWERTRAIN	OTR PRICE	VED BAND
-------	------------	-----------	----------

IS 250 SE	2.5-litre V6 petrol	£26,495	J
IS 300h SE	2.5-litre full hybrid	£29,495	A
IS 250 Luxury	2.5-litre V6 petrol	£27,995	J
IS 300h Luxury	2.5-litre full hybrid	£30,995	B
IS 250 F Sport	2.5-litre V6 petrol	£30,495	K
IS 300h F Sport	2.5-litre full hybrid	£33,495	B
IS 250 Premier	2.5-litre V6 petrol	£35,495	K
IS 300h Premier	2.5-litre full hybrid	£38,495	B

## 11. TECHNICAL SPECIFICATIONS

ENGINE	
	<b>IS 250</b>
Engine code	4GR-FSE
Engine type	V6, 60°
Valve mechanism	24 valve DOHC, dual VVT-i
Displacement (cc)	2,500
Bore x stroke (mm)	83.0 x 77.0
Compression ratio	12.0:1
Max. power (bhp/kW @ rpm)	205/153 @ 6,400
Max. torque (Nm @ rpm)	252 @ 4,800
	<b>IS 300h</b>
Engine code	2AR-FSE
Engine type	4 cylinders in-line
Valve mechanism	16 valve DOHC, dual VVT-i

Displacement (cc)	2,494	
Bore x stroke (mm)	90.0 x 98.0	
Compression ratio	13.0:1	
Max. power (bhp/kW @ rpm)	178/133 @ 6,000	
Max. torque (Nm @ rpm)	221 @ 4200-5400	
<b>HYBRID SYSTEM (IS 300h)</b>		
<b>Motor generator</b>		
Type	Permanent magnet, synchronous motor	
Max. voltage	650	
Max. power (bhp/kW)	141/105	
Max. torque (Nm)	300	
<b>Hybrid battery</b>		
Type	Nickel metal-hydride	
Nominal voltage	230.4	
Number of cells	192	
System voltage	650	
Total system output (bhp/kW)	220/164	
<b>PERFORMANCE</b>	<b>IS 250</b>	<b>IS 300h</b>
0-62mph (sec)	8.3	8.1
Max. speed (mph)	125	143
<b>DIMENSIONS</b>		
Overall length (mm)	4,665	
Overall width –mirrors folded (mm)	1,810	
Overall width – including mirrors (mm)	2,027	
Overall height (mm)	1,430	

Wheelbase (mm)		2,800	
Track front (mm)		1,535	
Track rear (mm)		1,550 1,540 (18in wheels)	
Overhang front (mm)		830	
Overhang rear (mm)		103.5	
Coefficient of Drag (Cd)		0.26 – IS 300h 0.28 – IS 250	
Fuel tank capacity (litres)		66	
INTERIOR DIMENSIONS			
Interior length (mm)		1,945	
Interior width (mm)		1,500	
Interior height (mm)		1,115	
Luggage capacity (litres)		450 – IS 300h 480 – IS 250	
WEIGHTS (kg)		IS 300h	IS 250
Kerb weight		1,620 – 1,680	1,555 – 1,645
Gross vehicle weight		2,130	2,090
Towing capacity (braked)		750	1,500
Towing capacity (unbraked)		750	750
TRANSMISSION		E-CVT	6AT
Gear ratios	1 <sup>st</sup>	-	3.538
	2 <sup>nd</sup>	-	2.060
	3 <sup>rd</sup>	-	1.404
	4 <sup>th</sup>	-	1.000
	5 <sup>th</sup>	-	0.713



	6 <sup>th</sup>	-	0.582
	Forward	3.333	-
	Reverse	3.333	3.168
Differential Gear Ratio		2.473	3.727
<b>FUEL CONSUMPTION</b>		<b>IS 300h</b>	<b>IS 250</b>
Combined (mpg)	SE	65.7	32.8
	Luxury	64.2	32.8
	F Sport	60.1	30.7
	Premier	60.1	30.7
Urban (mpg)	SE	64.2	23.7
	Luxury	61.4	23.7
	F Sport	57.6	22.8
	Premier	57.6	22.8
Extra Urban (mpg)	SE	62.8	42.2
	Luxury	61.4	42.2
	F Sport	57.6	38.7
	Premier	57.6	38.7
<b>EMISSIONS, VED &amp; INSURANCE</b>		<b>IS 300h</b>	<b>IS 250</b>
CO <sub>2</sub> (g/km)	SE	99	199
	Luxury	103	199
	F Sport	109	213
	Premier	109	213
VED bands	SE	A	J
	Luxury	B	J
	F Sport	B	K
	Premier	B	K

Insurance groups	SE	32E	31E
	Luxury	33E	32E
	F Sport	33E	32E
	Premier	34E	33E
<b>SUSPENSION</b>			
Front		Double wishbones	
Rear		Multilink	
<b>BRAKES</b>			
Front		Ventilated discs	Ventilated discs
Rear		Ventilated discs	Discs
<b>STEERING</b>			
Type		Rack and pinion, electric power steering	
Ratio			
Turns (lock to lock)		2.841	
Min. turning radius (m)	Tyre	5.2	
	Body	5.5	
<b>TYRES AND WHEELS</b>			
Tyre & wheel size	SE	Front 205/55R16 91W Rear 205/55R16 91W	
	Luxury	Front 225/45R17 91W Rear 225/45R17 91W	
	F Sport	Front 225/40R18 88Y Rear 255/35R18 91Y	
	Premier	Front 225/40R18 88Y Rear 225/35R18 90Y	

## 11. EQUIPMENT SPECIFICATIONS

<b>SAFETY</b>	<b>SE</b>	<b>LUXURY</b>	<b>F-SPORT</b>	<b>PREMIER</b>
Driver & front passenger airbags	✓	✓	✓	✓
Driver & front passenger side airbags	✓	✓	✓	✓
Driver & front passenger knee airbags	✓	✓	✓	✓
Curtain Shield airbags	✓	✓	✓	✓
Front passenger airbag cut-off switch	✓	✓	✓	✓

Child proof locks on all rear doors	✓	✓	✓	✓
ABS	✓	✓	✓	✓
Electronic Brakeforce Distribution (EBD) with Brake Assist System (BAS)	✓	✓	✓	✓
Vehicle Stability Control (VSC)	✓	✓	✓	✓
Traction Control (TRC)	✓	✓	✓	✓
Vehicle Dynamics Integrated Management (VDIM)	✓	✓	✓	✓
Hill-start Assist Control (HAC)	✓	✓	✓	✓
Blind Spot Monitor with Rear Cross Traffic Alert	✗	✗	✗	✓
Pop-Up Hood	✓	✓	✓	✓
Tyre Pressure Monitoring System	✓	✓	✓	✓
Speed sensitive power steering	✓	✓	✓	✓
Electronic front seatbelt pretensioners with force limiters	✓	✓	✓	✓
Five three-point seatbelts and headrests	✓	✓	✓	✓
High mounted rear stop light	✓	✓	✓	✓
Seatbelt warning system	✓	✓	✓	✓
ISOFIX child seat anchor points on outer rear seats	✓	✓	✓	✓
Adaptive Variable Suspension	✗	✗	Opt (IS 300h)	✗
<b>INSTRUMENTS &amp; CONTROLS</b>	<b>SE</b>	<b>LUXURY</b>	<b>F-SPORT</b>	<b>PREMIER</b>
Drive Mode Select	✓	✓	✓	✓
Active Sound Control (IS 300h)	✓	✓	✓	✓
Front and rear parking sensors	Opt	✓	✓	✓

Cruise control	✓	✓	✓	✓
Speed-sensitive electric power steering	✓	✓	✓	✓
LFA-style instrumentation	✗	✗	✓	✗
<b>AUDIO, NAVIGATION &amp; INFORMATION</b>	<b>SE</b>	<b>LUXURY</b>	<b>F-SPORT</b>	<b>PREMIER</b>
7in Lexus media display with Remote Touch controller	✓	✓	✓	✗
Lexus Premium Navigation with Dynamic Route Guidance, Lexus connected services, rear-view camera and DAB tuner	Opt	Opt	Opt	✓
Aux socket and USB port	✓	✓	✓	✓
6-speaker audio system, CD player, DAB tuner	✓	✓	✗	✗
15-speaker Mark Levinson 5.1-channel surround sound system with Auto Volume, DVD player and DAB tuner with Remote Touch controller	✗	✗	Opt	✓
Bluetooth	✓	✓	✓	✓
<b>COMFORT &amp; CONVENIENCE</b>	<b>SE</b>	<b>LUXURY</b>	<b>F-SPORT</b>	<b>PREMIER</b>
Electrochromic auto-dimming rear view mirror	✗	✓	✓	✓
Electrically adjustable steering column	✗	✗	✗	✓
Electric front and rear windows	✓	✓	✓	✓
<b>VENTILATION</b>	<b>SE</b>	<b>LUXURY</b>	<b>F-SPORT</b>	<b>PREMIER</b>
Dual-zone climate control air conditioning with electrostatic temperature switches	✓	✓	✓	✓
<b>SECURITY</b>				
Alarm with intrusion and inclination sensors	✓	✓	✓	✓
Smart Entry and Start system	✓	✓	✓	✓
Remote central locking with deadlocks	✓	✓	✓	✓
Two-step double locking	✓	✓	✓	✓

Security VIN etching	✓	✓	✓	✓
Engine immobiliser	✓	✓	✓	✓
<b>SEATING, UPHOLSTERY &amp; TRIM</b>				
Manual front seat adjustment	✓	✓	✗	✗
Front and rear armrests	✓	✓	✓	✓
Rear armrest with two cupholders	✓	✓	✓	✓
60:40 split-folding rear seat	✓ Not IS 300h	✓	✓	✓
Fabric upholstery with Tahara side bolsters	✓	✓	✓	✗
Sports seats with fabric upholstery with Tahara side bolsters, heated and electrically adjustable	✗	✗	✓	✗
8-way electrically adjustable front sports seats with heating/ventilation, memory setting and leather upholstery	✗	Opt	✗	✓
Leather upholstery with manually adjustable and heated front seats	✗	Opt	✗	✗
Leather upholstery with electrically adjustable, heated and ventilated front seats, auto-folding and dimming door mirrors and memory function	✗	✗	Opt	✗
3-spoke steering wheel with paddle shifts	✓	✓	✗	✓
Leather steering wheel and gear lever trim	✓	✓	✗	✓
F-Sport steering wheel with paddle shifts and gear lever with perforated leather trim	✗	✗	✓	✗
F-Sport aluminium interior trim	✗	✗	✓	✗
F-Sport aluminium sports pedals	✗	✗	✓	✗
F-Sport aluminium scuff plates	✗	✗	✓	✗
Gloss black trim detail	✓	✓	✗	✗

Grey wood trim detail	x	x	x	✓
<b>EXTERIOR</b>				
High Intensity Discharge (HID) dusk-sensing headlamps with LED daytime running lamps	✓	✓	✓	✓
Headlamp cleaners	✓	✓	✓	✓
Halogen front fog lamps	✓	✓	x	✓
LED front fog lamps	x	x	✓	x
LED rear lamp and stop lamps	✓	✓	✓	✓
Power-folding, heated door mirrors with puddle lights and turn indicators	✓	✓	✓	x
Auto-folding, auto-dimming door mirrors with puddle lights and turn indicators	x	x	Opt (with leather)	✓
Rain-sensing windscreen wipers	x	✓	✓	✓
Sunroof	x	x	x	Opt
F-Sport front and rear bumpers	x	x	✓	x
F-Sport mesh grille	x	x	✓	x
16in alloy wheels	✓	x	x	x
17in alloy wheels	x	✓	x	x
F-Sport 18in 10-spoke alloy wheels	x	x	✓	x
18in 5-spoke alloy wheels	x	x	x	✓
Tyre repair kit (IS 300h)	✓	✓	✓	✓
Space saver spare wheel (IS 250)	✓	✓	✓	✓