

LEXUS NX 200t



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10 AMAZING FACTS ABOUT THE NEW NX 200t

1. **Lexus' first turbo petrol engine:** a 2.0 litre, 4-cylinder unit with newly developed six-speed automatic transmission for spirited driving paired with greater fuel efficiency
2. **Door handle design:** no visible key hole – a world-first for a pull handle
3. **Rear Power Seat:** segment-first rear 40:60 power-folding operated via controls accessible from the instrument panel, luggage compartment and each side of the rear seat.
4. **Shimamoku wood:** wood polishing process to create a unique polished steel finish inspired by Yamaha's top grade concert piano. The surface treatment prevents reflections from the stage lights which might distract the performer. Lexus introduced Shimamoku in the GS interior ornamentation and the LS steering wheel.
5. **Wireless Charging Tray:** located in the centre console it allows smart phones to be recharged by being simply placed on the charging tray, with no need for a cable.
6. **360-degree Panoramic View Monitor:** allows the driver to view the NX as if looking down at it from above and accurately check the surroundings whilst manoeuvring.
7. **Remote Touch Interface with Touch Pad:** placed in the centre console it allows easy access to ancillary controls with minimum driver distraction.
8. **Mark Levinson Premium Surround Sound System with Clari-Fi:** a world-first in the automotive sector. The system analyses and improves the audio quality of all types of compressed, digitalised music sources.
9. New generation, linear-solenoid type **Adaptive Variable Suspension:** refined adjustment of suspension damping now with number of adjustment levels increased from 9 to 30.
10. **Advanced Pre-Crash Safety system:** combined with All-Speed Adaptive Cruise Control (ACC) detects a possible collision between the NX and an obstacle in front. If the system assumes a collision is imminent, it activates Pre-Crash Brake to either avoid the collision or mitigate its impact through significant deceleration.

LEXUS IN THE PREMIUM MID-SIZE SUV SEGMENT

'The NX was developed as a premium SUV delivering high performance, packaged with an alluring exterior and interior design which creates a sense of desire. On its practical side, the NX was designed to complement daily life while also being capable of supporting an active lifestyle on the weekend.'

Takeaki Kato, NX Chief Engineer

Following the 2014 launch of the full hybrid Lexus NX 300h, the new NX 200t introduces the company's first turbocharged petrol engine to the model range.

The highly sophisticated 2.0 litre, in-line 4-cylinder engine features direct injection, variable compression and twin-scroll turbocharging, offering outstanding responsiveness with no turbo lag and enhanced low speed torque. It is the world's first petrol engine to combine twin -scroll turbocharging with an integrated exhaust manifold cylinder head.

The NX marks Lexus' entry into the mid-sized premium SUV segment. It has been conceived under the development concept of "Premium Urban Sports Gear", much like high quality sports watches, bikes and fashion, as an edgy and emotional design to appeal to new customers who lead urban and active lifestyles.

The highly competitive mid-size sports utility vehicle market is one of the fastest growing in the auto industry. Globally, demand for mid-size SUVs has

grown almost seven-fold in the last seven years and it is expected to top one million per year in 2015.

Lexus pioneered the premium SUV segment with the launch of the RX in 1998. With the subsequent arrival of both the GX and LX, the company has gone on to established an enviable reputation for setting new benchmarks in quality, design flair and advanced technology in the premium SUV and 4x4 markets.

UNIQUE DESIGN, OPTIMAL PACKAGE

Its styling clearly influenced by the LF-NX concept vehicles revealed at the 2013 Frankfurt and Tokyo Motor Shows, the NX represents the latest and most progressive expression yet of the Lexus design language.

An exterior combining highly individual front grille styling with a low, cab-forward silhouette creates an aggressive, eye-catching SUV with a

particularly powerful road presence designed to attract a new generation of younger, style-conscious customers to the Lexus brand.

The NX also delivers practical solutions to space and luggage requirements. The F SPORT version provides a more aggressive and bolder design with exclusive styling and trim throughout.

CUSTOMER-FOCUSED INNOVATION

The new heights in innovation scaled by Lexus in the SUV market are widely represented on board the new NX with a comprehensive array of advanced, user-friendly technologies.

These include a Wireless Charging Tray for portable devices such as mobile phones, the first application of a new Lexus Remote Touch Interface with a Touch Pad, a 360 degree Panoramic View Monitor, an enhanced Multi-Information Display which includes a turbo-boost meter and a Lexus-first G sensor, and a 6.2" Head-Up Display.

SPORTING DRIVING DYNAMICS, EFFICIENT POWERTRAIN

Available in either front- or all-wheel drive powertrain formats, the NX 200t has been designed to combine a sporting driving experience with the ride comfort associated with any Lexus and high levels of fuel efficiency.

Developing 238 hp, it makes extensive use of electronic advancements and chassis dynamics to produce a highly engaging ride and handling package that is spirited, agile and dynamic, yet still returns an average fuel consumption from just 7.7 l/100 km.

The driving dynamics are even more enhanced through the adoption of performance dampers on the F SPORT version.

COMPREHENSIVE SAFETY PACKAGE

Lexus has also redefined standards of safety and driver assistance in the SUV and 4x4 markets with the introduction of advanced active, passive and pre-emptive technology.

The new NX benefits from the company's most sophisticated safety systems, including the advanced Pre-Crash Safety system (PCS), Vehicle Stability Control (VSC), All-Speed Adaptive Cruise Control (ACC), Lane Keep Assist (LKA), Blind Spot Monitor (BSM), Automatic High Beam (AHB) and Rear Cross Traffic Alert (RCTA).

DESIGN AND PACKAGING

- Muscular and edgy exterior design with a strong SUV character
- Bold yet luxurious interior design combining prominent chrome elements with high quality leather and wood
- Driver-focused cockpit with ergonomically structured operation and display zones
- Ample interior space combining SUV functionality with Lexus luxury and comfort

The design of the new Lexus NX was substantially influenced by the 2013 LF-NX concept vehicles that were shown, first as a hybrid at the Frankfurt Motor Show, and then, powered by the all-new turbo drivetrain, at the Tokyo Motor Show.

Exterior

At a glance, the NX's aggressive styling hints at both functionality and performance.

Chief Exterior Designer Nobuyuki Tomatsu designed it to combine urban practicality with a feeling of agility not usually associated with an SUV.

The NX combines a low roofline with an aggressive, cab-forward silhouette. Powerfully flared front and rear fenders are fused to a diamond-shaped body with lines generated from the spindle grille. The NX has the most individual and aggressive front face in the Lexus line-up, its prominent spindle grille accentuated by new LED headlamps and LED day time running lights (DRL).

The sleek side profile is accentuated by a roofline which falls towards the back of the vehicle. The bold, flared wheel arches housing 17 or 18-inch wheels provide a crouching, muscular stance.

The world's first door handle mechanism to feature a hidden key barrel and integrated lighting combines with an aerodynamic door mirror design to enhance the premium appearance of the NX's smooth, flowing lines.

Echoing the spindle grille design of the front, the rear of the NX features L-shaped combination lamps with seamless LED lighting. The new NX 200t may be differentiated from the full hybrid 300h by a unique, trapezoidal twin exhaust design which highlights the installation of Lexus' first small-displacement turbo.

Aerodynamics

The NX achieves an ideal balance of aerodynamics and design. Its compact shape proved particularly challenging during the aerodynamic develop-

ment of the car. The adoption of a rear spoiler proved essential in creating a smooth airflow from the back of the vehicle, and extensive wind tunnel testing led to the trailing edge of the fin being given a slightly upturned lip. This detail not only created a striking design accent but also provided the best Cd value - just 0.33 (and for NX 300h even 0.32).

The front and rear spats, rear floor cover and engine undercover are newly developed for the NX. The shape and composition of the engine undercover offer both heat resistance and enhanced aerodynamics.

Lights and lamps

Lexus-first low energy consumption LED lights play a major role in defining NX's design objectives. LEDs allow for faster illumination while saving energy. The NX incorporates a total of 90 LEDs.

Each headlamp cluster features 6 new, high-brightness LEDs, including 3 L-shape low beam lamps. 23 LEDs are used for the daytime running lamps and another 16 for turning signals on each side. Thick inner lenses give the units an eye-catching, crystal-like shine.

The NX also features adaptive cornering lamps with LEDs. When the turn indicators are activated two LED lamps operate automatically to better illuminate the bend ahead.

A design breakthrough in rear illumination and exacting production accuracy gives the NX a unique rear lamp signature; an uninterrupted flow of light crossing seamlessly from the tailgate to the body. The thick wall moulding technology adopted for the outer lens combines with inner refraction detailing to give the impression of a cut crystal glass lamp.

Door handle design

The newly designed door handle has no visible key hole, a world-first for a pull handle of this type. A structure has been devised that allows the key to be inserted behind the handle if necessary.

A single LED lamp both provides a welcoming silhouette along the top of the handle and a puddle light on the ground below. Reflecting the Lexus tenet of seamless hospitality, the lamp automatically illuminates as the user approaches the NX whilst, simultaneously, the new Remote Touch Interface illuminates within the interior.

Door mirrors

Attaching directly to the door to give an expanded field of vision, newly designed door mirrors optimise rear visibility and reduce wind noise. Metal trim accentuates a stylish design that both reduces sunlight reflection and eliminates dazzle. Airflow between the mirror and the car - a source of wind noise - has been minimised, and the use of a small fixed quarterlight window improves side visibility in front of the mirror.

Exclusive wheels

Lexus has created a new range of cast alloy wheels for the NX. They feature a variety of glossy surface finishes, each designed for light weight.

There is a choice of one 17-inch 10-spoke and two 18-inch cast alloy wheel designs. One of the latter features a three-dimensional centre and a U-shaped graphic element on each of its five axes. The second achieves strong visual depth through a dynamic three-dimensional section combined with highly luminous machined Y-shaped spokes.

The Lexus NX F SPORT offers customers two bespoke wheels. The 225/60R18 wheel makes use of new black paint combined with a highly luminous machine finish to express an aggressive, sporting image. A slightly lower profile 235/55R18 wheel has an exclusive dark premium metallic highly textured finish.

Interior

The interior design of the Lexus NX reflects the bold character of its exterior. Chief Interior Designer Tetsuo Miki designed it to bring a sense of excitement to the cabin atmosphere that directly evokes 'Premium Urban Sports Gear'. The core idea was to combine the structural beauty of a high-performance machine with materials and textures that provide luxury and functionality.

The new NX's ergonomically designed, driver-focused cockpit enables customers to remain alert and comfortable over long periods of time. Lexus' Human Machine Interface (HMI) technology offers fast, intuitive operation of all switches and controls to minimise driver distraction.

The prominent, silver centre console frame is strongly embedded in the instrument panel to symbolise the NX's rugged, SUV character. It is flanked by soft leather knee pads on both sides which create a strong contrast to the metallic frame whilst firmly supporting the driver and passenger. Wood inserts further underline the natural luxury of the interior.

Maximizing space in a mid-size SUV

The NX provides ample room for all occupants, with segment-best space advantages in critical areas. Its front to rear seat couple distance is a class-leading 962mm and the high-roof design has resulted in exceptional head clearance. Its rear knee room provides even more space than that of some bigger SUVs.

Luggage room is also spacious and practical. Maximum loadspace width is 1,347mm, enough to store golf bags sideways. Additional storage space is available under the luggage board. This gives the NX 200t a total luggage capacity of 580* litres.

As befitting a practical SUV, the NX cabin is equipped with a wide variety of storage bins. These include glove and console boxes, a console mid-tray, utility box, sunglasses storage bin, cup holders and front and rear door pockets. The centre cup holders are big enough for two half litre bottles and the door pocket bottle holders can each hold a half litre plastic bottle.

Rear Power Seat

The NX offers customers the option of Lexus-first and segment-first 40:60 rear power-folding seats. Operated via controls mounted on the instrument panel, each side of the rear seat and the luggage compartment, the seats fold fully flat in only 10 seconds.

Meters and switches - human interaction

The analogue clock, speedometer and tachometer have spin-milling-processed faces to create a sense of unity and a subtle impression of genuine metal.

A 4.2-inch Thin Film Transistor (TFT) LCD providing a full-colour Multi Information Display (MID) is positioned at the centre of the instrument cluster. Ambient illumination in the MID is linked to the Drive Mode Select switch and changes colour for each mode. Using the Multimedia Linkage Function, the MID can also display phone and audio information.

For the first time on a Lexus, the NX introduces touch switches in the head lining for the front dome lamp and map lamp switches. A microcomputer detects the proximity of the user's finger to turn the lamps on and off.

Welcoming illumination is an important part of Lexus' appeal to customers. The Remote Touch Interface lights up along with the door handles when the owner approaches the NX with the key. It remains illuminated when the owner enters the car.

Foot well lighting, particularly important as a safety assurance and to provide a feeling of luxury, centres on the occupant's seating position. For maximum night-time visibility the rear dome lamp is fitted with an LED lamp.

Materials

The interior of the new NX was developed with the high level of attention-to-detail which characterises every Lexus. For example, the interior surface of the bottle holder in the middle console is finished in a high friction material that allows the driver to open the bottle with just one hand.

Shimamoku wood - an inspiration

The Lexus NX features a wood polishing process to create a unique polished steel finish, inspired by Yamaha's top grade concert piano. Called Shimamoku, the surface treatment prevents reflections from the stage lights which might distract the performer or the conductor.

Lexus introduced Shimamoku in the GS interior ornamentation and on the LS steering wheel in 2012, but, for the first time in the new NX, it has now devised an eight-step process resulting in a distinctive, soft gloss, non-reflective finish.

ON BOARD TECHNOLOGY

- Wireless Charging Tray for cable free phone charging
- 360° Panoramic View Monitor for greater safety on and off-road
- 6.2" Head-Up Display for easy information access
- Remote Touch Interface (RTI) with Touch Pad, Multi-Information Display (MID), etc.
- Top of the range Mark Levinson Surround Sound System with first automotive industry use of music quality-improving Clari-Fi

Several innovative on board technologies make their first appearance in the NX, making the ownership experience even more enjoyable.

Wireless Charging Tray

A new wireless charging tray is located in the centre console box. It allows smart phones, or other items compatible with international wireless charging standards (qi protocol), to be recharged by being simply placed on the tray, with no need for a cable.

Panoramic View Monitor

The new NX is equipped with a Lexus-first, 360-degree Panoramic View Monitor developed to offer drivers a high degree of reassurance when driving in confined spaces, both on and off road, at speeds up to 20km/h.

A purpose-built ECU mounted behind the C-pillar constantly monitors input from four interconnected cameras placed in the left- and right-front mirrors, the front grille and rear license plate garnish.

The ECU processes the images and plays them back on the audio and navigation display monitor in a choice of seven combinations. It is even possible to view the NX as if looking down at it from above, and accurately check its surroundings before driving off.

The new Panoramic View Monitor allows the driver to see obstacles which, using conventional rear- or front-view cameras, would be in blind spots. The system features full-screen imaging, without the 'letterboxing' created by an analogue camera format.

The Panoramic View Monitor is used in conjunction with Lexus Park Assist, and Rear Cross Traffic Alert (RCTA), which detects crossing obstacles in the driver's blind spot when reversing from a parking spot.

Head-Up Display

The Head-Up Display projects a range of information onto the bottom sector of the windscreen, including vehicle speed, engine rpm, navigation guidance and audio settings.

Remote Touch Interface

A new Remote Touch Interface with Touch Pad is an integral part of the operation zone in the centre console. The RTI's ergonomic structure helps the hand normally locate the on-screen icons. A palm rest is provided for greater ease of operation. The RTI provides fast, intuitive, on-the-move access to ancillary controls with minimum driver distraction. It can also easily be accessed by the front-seat passenger.

Audio systems

The highly-rigid bodyshell of the Lexus NX provides an ideal platform for two high quality audio systems; an 8- or 10-speaker Pioneer Premium Sound system, and a 14-speaker Mark Levinson Premium Surround System.

Pre-programmed sound equalizing in the NX differs to that of other Lexus models due to the difference in interior space and cabin layout. Both audio systems have been purpose-built for the new NX, addressing the increasing popularity of the use of compressed sound as a music source, and enhancing its quality.

The Pioneer system uses a newly developed Digital Signal Processor (DSP) to restore high notes lost through compression. A full digital Class D amplifier powers 16cm speakers in the front doors combined with 6.5cm tweeters mounted in the instrument panel.

The Mark Levinson Premium Surround System uses patented high efficiency technology which more than doubles sound output with the same expenditure of energy. The system employs a 12-channel Class D amplifier, and new Unity technology that places 9cm speakers at each end of the instrument panel. The total system develops 125 watts per channel and 835 watts overall with distortion limited to below 0.1 per cent.

Making its very first appearance in the automotive market, Clari-Fi is available with the Mark Levinson Premium Surround System. It analyses and improves the audio quality of all types of compressed, digitalized music sources.

NEW 2.0L TURBO PETROL ENGINE

- Lexus' first turbocharged petrol engine
- World's first petrol engine combining twin-scroll turbocharging with an integrated, four-into-two exhaust manifold cylinder head for great responsiveness with no turbo-lag and high level of fuel efficiency
- D-4ST direct injection and Dual VVT-iW for outstanding responsiveness with no turbo lag and enhanced low speed torque
- Lightweight, smoothness and quietness

Lexus' first turbocharged direct-injection petrol engine was developed in-house to marry exciting performance with optimum fuel efficiency.

The innovative 2.0-litre, in-line 4-cylinder engine is the first in the world to combine a water cooled cylinder head with an integral, four-into-two exhaust manifold and a twin scroll turbocharger.

Meeting EURO 6 emissions requirements, the new engine generates maximum power of 175 kW/238 DIN hp at 4800-5600 rpm and 350Nm of torque from 1650-4000 rpm, giving the NX 200t a 0-100 km/h acceleration time of 7.1 seconds and a maximum speed of 200 km/h. The turbo returns an average fuel consumption of 7.7 l/100 km generates CO₂ emissions of 178 g/km.

Cylinder Head with Integral 4-into-2 Exhaust Manifold and Twin-Scroll Turbo

This unique, world-first combination of engine technologies has been designed to provide a high level of responsiveness with minimal turbo lag and enhanced low speed torque, and yet return excellent fuel economy.

The four-into-two exhaust manifold system pairs cylinders according to their expansion or compression stroke. Acting in conjunction with the highly-efficient, twin-scroll turbocharger, this innovative manifold structure prevents interference between the exhaust gasses from each cylinder, generating high torque across the widest possible rev range.

The engine further employs an air to liquid intercooler mounted directly to the engine to significantly reduce the intake volume downstream of the turbocharger, minimising turbo lag for a highly responsive performance.

The twin-scroll turbocharger itself features variable wastegate valve control. This minimises pumping losses by reducing back pressure during low engine loads when the turbo is not required, not only realising excellent fuel economy, but also contributing to the new engine meeting EURO 6 emissions requirements.

In addition, the integration of the exhaust manifold within the cylinder head enhances exhaust gas cooling without sacrificing catalyst warm-up performance. This not only helps to suppress catalyst deterioration, but also expands driving range at the optimum, stoichiometric air-fuel ratio.

D-4ST Fuel Injection System

The D-4ST (Direct injection 4 stroke gasoline engine Superior version with Turbo) fuel injection system combines direct fuel injection and turbocharging technology to create a high level of compatibility between the 'high tumble ratio' achieved by optimising the shape of the cylinder head intake ports and the piston tops, and turbo 'boost control'.

D-4ST combines a high pressure fuel system for injection directly into the cylinders with a low pressure system for injection into the ports. Injection is

split between the direct and port injectors according to the engine load, optimising fuel combustion in all driving situations to enhance both low speed torque and fuel economy.

Innovative Dual VVT-iW Technology

Optimising torque throughout the engine rev range and allowing the engine to start in the Otto cycle and yet run in the more fuel efficient Atkinson cycle, the new Lexus turbo features innovative dual variable valve timing technology which adopts VVT-i to the exhaust valves and VVT-iW to the intake valves.

The late intake valve closing of the Atkinson cycle reduces pumping losses and boosts fuel economy. VVT-iW incorporates a mid-position lock which not only enables the Atkinson cycle to be maintained without sacrificing starting performance in cold weather, but also delivers wide open throttle performance.

Light Weight and Further Advanced Features

The new 2.0 litre turbo engine is remarkably light and compact. Cast with low nickel content heat resistant steel, and featuring a resin cylinder head cover, intake manifold and intake pipes, it weighs just 160 kg. The unit was bench-tested for more than 10,000 hours before extensive on-road testing began, during which it then covering more than one million kilometres.

Several measures have been adopted to reduce friction losses within various parts of the engine, enhancing fuel economy. The adoption of an offset crankshaft lowers the piston thrust load to reduce friction losses. Cylinder bore machining has been improved and a piston surface treatment applied to the piston skirts, reducing sliding resistance. Low tension piston rings have been used, and the weight of reciprocating parts reduced.

A lightweight roller rocker valvetrain and a low friction timing chain have been adopted, and the sliding parts of the chain fabricated in a low friction material. Low friction materials have also been used for the crankshaft oil seals, and the flow of lubricating oil optimised, with oil pump flow reduced through the adoption of a variable discharge mechanism.

Careful heat management within the engine further improves fuel efficiency. To that end, a cylinder block rapid warm-up system suppresses the flow of coolant into the block when the engine is cold, and a piston cooling oil jet control system cuts the supply of oil to the pistons to improve warm-up speeds.

Smoothness, Quietness and a Better Turbo Sound

With the rigidity of the main structural components already optimised to suppress vibration, the new engine is further equipped with a balance shaft featuring resin gears for even greater smoothness.

A newly developed lubricating calcium free oil removes the chance of engine knock at low engine revolutions, and the piston cooling oil jet system further improves anti-knock performance.

The water-cooled intercooler provides strong advantages in starting off acceleration and a 0.3-second reduction in 0-100km/h acceleration time over an air-to-air type alternative. The acceleration curve prioritises torque delivery at low speeds.

Turbo engines tend to be noisy when the throttle is closed (referred to as the 'turbo sigh'). An electric air bypass valve and resonator have been adopted to greatly reduce characteristic turbocharger noise. As a turbocharged engine requires smooth intake flow for performance, Lexus engineers focused on creating special duct shapes which deliver power without noise.

New six-speed transmission

A new sequential automatic six-speed transmission cooperates with the new engine to achieve a balance of boost pressure for performance and fuel economy. Torque-demand control logic calculates required engine torque, maximising it to deliver quick, responsive acceleration.

DRIVING DYNAMICS

- High rigidity body and suspension characteristics for dynamic, agile and responsive handling and a high level of ride comfort
- Drive Mode Select to adjust vehicle behaviour to road conditions and driving style
- Adaptive Variable Suspension (AVS) combines ride comfort with increased stability when cornering

The new NX 200t has been designed to offer customers an exciting, dynamic and agile driving experience while also ensuring a high level of ride comfort.

NX chief engineer, Takeaki Kato, said his team benchmarked innovations in Lexus' IS to provide agility and stability. Mechanical assistance such as differential pre-load offer more precise cornering. And the Adaptive Variable Suspension system has been enhanced, with the number of control force steps increased from 9 to 30.

High rigidity body

Extensive use of hot-stamped high tensile strength sheet steel, combined with aluminium, has resulted in a light weight, highly rigid bodyshell.

Advanced production techniques pioneered during the development of the Lexus IS (particularly body adhesives, laser screw welding and additional spot welds) have been used to strengthen panel joints. Laser screw welding around the door openings is supplemented by new body adhesive techniques in the door openings, rear wheel housing and rear floor. Reinforcement around suspension members creates a strong platform and the number three cross-member is reinforced to support the drivetrain.

A high rigidity urethane sealant has been used for the windshield glass, effectively making the glass a load-bearing member and increasing resistance to body flex.

Heavy duty damping force has been applied to the NX's rear door struts to ensure consistently snug alignment.

Suspension

Of all the attributes of the Lexus NX 200t, perhaps the most outstanding is the unique combination of superior ride and highly responsive handling.

The NX 200t uses a MacPherson strut front suspension system with high-rigidity upper supports and low-friction strut bearings. The suspension hardware includes barrel-shaped coil springs, large diameter high-rigidity wheel bearings, high damping bushings for the strut and number two lower arm mounting, and a high rigidity stabilizer bar.

At the rear, a newly devised trailing arm double wishbone rear suspension system optimises agility, stability and ride comfort. Separating the coil springs and damper units also minimises suspension component intrusion into the luggage compartment and allows for the lowest possible load space floor.

Special features include high rigidity lower arm mountings, low friction dampers and an increased consistency in spring movement due to the shape of the trailing arm bushings.

Force control was a priority; minimizing the sound of shake and shudder caused by lateral loads from the road surface which changes the tread width of a tyre as the wheel reacts to an undulation.

The NX 200t has reinforced front lower suspension arm mountings so the tread width does not change with the wheel stroke. This also provides optimum steering feel and input control.

Chassis rigidity is the key to optimum suspension delivery and, hence, agility. Due to the particularly high rigidity of the new NX 200t's bodyshell, it has been possible to increase the spring rate of the front upper support bushings over that which would have been possible with a softer platform, further optimising the suspension for greater agility.

Even the rigidity of the steering column installation is beyond normal parameters. Friction between the moving parts of the dampers has been minimized to overcome the feeling of road shock during cornering.

The bound and rebound curves of the dampers have been optimized, especially at low piston velocities, to suppress body pitch and roll. Front and rear performance dampers are gas-pressurized and precisely machined to dampen miniscule vibrations in the body.

Drive Mode Select

Lexus Drive Mode Select provides integrated control of multiple systems to enhance driving pleasure and performance.

Via a centre console dial, Drive Mode Select offers drivers the choice of NORMAL, ECO, SPORT and SPORT+ driving modes. Each mode controls throttle action depending on whether economy or performance is required.

Drive Mode Select simultaneously modifies the power steering assistance curve and enables a choice of two suspension damping force settings.

Adaptive Variable Suspension

The NX 200t features new generation linear-solenoid type Adaptive variable Suspension (AVS). Operating in conjunction with Drive Mode Select, it automatically adjusts the suspension damping under all driving conditions to combine the greatest possible straight line ride comfort and high speed stability with suppression of body roll and optimum cornering agility.

The breakthrough use of linear solenoid actuators instead of more conventional AVS step motors more than trebles the number of control force levels, from 9 to 30. As a result suspension response time has decreased fourfold, from 80 to 20 milliseconds.

The actuator is more compact, so it can be relocated from the top of the damper unit to its lower side, creating a lower bonnet line and resulting in more cargo space.

AVS operation is governed by nine control inputs:

- Vehicle Speed Sensing Control achieves ride comfort at low speeds and handling stability at higher speeds
- Roll Attitude Control maintains the vehicle's optimum attitude during cornering
- Anti-Dive Control moderates the tendency to pitch forward during braking
- Anti-Squat Control acts during acceleration to keep the vehicle level
- Rebound Control works best on rough surfaces to smooth out bumps
- Ruggedness Sensing Control decreases damping force when vibration from irregular road surfaces is sensed
- Unsprung Mass Variation Damping Control increases damping forces when components such as wheels start to resonate on uneven surfaces
- VSC Cooperative Control works with the vehicle stability control systems to provide the best handling options when the vehicle starts to skid, for example, on a damp surface
- Pre-Crash Safety System Cooperative Control provides extra damping force for accident avoidance under heavy braking.

LEXUS NX F SPORT

- Unique exterior design elements for even more aggressive and agile look
- Exclusive F SPORT colour and interior features
- Front performance dampers for even greater handling stability

The F SPORT stands out from the rest of the NX model range through unique styling modifications, exclusive colour schemes and dynamic upgrades.

F SPORT grille and exterior

The mesh grille of Lexus performance models combines with a metallic coated lower bumper moulding to set the NX F SPORT apart. The large spindle aperture is graded from bottom to top to express the outline of the distinctive F SPORT motif. The unique frontal appearance of the NX F SPORT is further accentuated by the use of a sporting black coating on the door mirrors and the signature F SPORT emblem on the front quarter panel beneath the A-pillar.

A Lexus-first sports wheel offers the choice of two wheel colours and tyre sizes. A 225/60/18 10-spoke alloy combines black paint on the lateral edges with a luminous machine-brushed finish. A second 10-spoke wheel

and tyre combination is a lower profile 235/55/18 with an exclusive dark metallic finish.

F SPORT-exclusive colour and interior

On board, the meter, steering wheel, gear shift, sport seats, pedals, gear shift, leather pad for passenger instrument panel and Dark Rose interior colour are all exclusive to F SPORT models.

Injection-moulded quilted seats hug the occupant's body to give improved support and lateral holding performance. Perforated non-slip aluminium pedals and a driver's foot brace provide practical assistance to agile diving. And the steering wheel leather is also perforated to provide even greater feel during performance driving.

The wheel carries the F SPORT emblem in its lower quadrant. The brushed

metallic gear shift lever and the scuff plate ornamentation beneath the door are also exclusive to F SPORT models.

Performance dampers

The NX F SPORT is exclusively equipped with front and rear suspension performance dampers, enhancing rigidity and decreasing vibration to optimise handling stability.

G-sensor and boost meter

The NX F SPORT features a Lexus-first 'G-Monitor' in its full-colour Multi Information Display (MID).

On the G-Monitor screen, a G-ball moves in accordance with the vehicle's lateral and longitudinal forces. The MID displays the peak force in each direction. Additional display bars also indicate the steering angle, throttle opening angle and hydraulic brake pressure.

In turbocharged NX F SPORT models, the MID provides a Lexus-first turbo-boost meter with the colour band changing in the high boost pressure range. The analogue displays show oil temperature and pressure.

SAFETY

- Advanced Pre-Crash Safety system (PCS)
- All-Speed Adaptive Cruise Control
- Lane Keep Assist (LKA) & Blind Spot Monitor (BSM) with Rear Cross Traffic Alert (RCTA)
- 6.2" Head-Up Display (HUD)
- Automatic High Beam
- High Rigidity Body
- 8 SRS Airbags
- Enhanced Pedestrian Protection

Designed and engineered to meet the highest safety standards, the new Lexus NX is equipped with a comprehensive array of active, passive and driver assistance systems.

The active safety package includes All Speed Adaptive Cruise Control, Lane Keep Assist (LKA), Blind Spot Monitor (BSM), Rear Cross Traffic Alert (RCTA), newly adopted cornering lamps and Head-Up Display (HUD).

The NX is equipped with daytime running lamps (DRL), a rear view camera and front and rear fog lamps as well as numerous electronic safety features. These include Emergency Brake Signal, Vehicle Stability Control (VSC) plus traction control, ABS with brake assist and electronic brake force distribution, and Hill-start Assist Control (HAC).

All-Speed Adaptive Cruise Control

An improved All-Speed Following Function built into the Adaptive Cruise Control uses a Millimetre Wave Radar sensor and steering sensors to recognize the vehicle travelling ahead and maintain a safe distance from it, even if it comes to a complete stop.

Lane Keep Assist

Lane Keep Assist (LKA) with steering control warns the driver with a buzzer if the system judges the vehicle is about to cross the lane markings without using the turn signals, and assists steering to avoid lane departure.

Automatic High Beam

Automatic High Beam (AHB) uses the same windscreen-mounted camera to detect both on-coming and leading traffic, automatically switching the headlamps to high beam when the road ahead is clear. The system will switch to low beam to prevent dazzling other road users and restore high beam when there are no vehicles ahead.

Advanced Pre-Crash Safety system

The multi-layer-strategy PCS uses a millimetre-wavelength radar sensor in the radiator grille to detect vehicles and other obstacles. The radar sensor provides distance measurement for the all-speed Adaptive Cruise Control (ACC).

PCS detects a possible collision between the vehicle and an obstacle, such as a vehicle ahead. If the system assumes a collision is imminent, it activates Pre-Crash Brake to either avoid the collision or reduce collision impact by significant deceleration performance.

Airbags

The new Lexus NX is equipped with eight SRS airbags, including a dual stage driver's airbag, dual-stage and dual-chamber front passenger airbag, driver knee air bag, front passenger cushion airbag, front-seat side airbags and full length side curtain-shield airbags.

Pedestrian Protection

Pedestrian protection includes an energy-absorbing structure for the hood and the fender mounting bracket as well as an impact-absorbing structure for the cowl. Energy absorbing material has been adopted in front of the bumper and under the radiator support to protect pedestrians' legs.

TECHNICAL SPECIFICATIONS

EXTERIOR DIMENSIONS

Wheelbase	2,660mm
Overall Length	4,630mm
Overall Width	1,845mm
Overall Height (unloaded)	1,645mm
Tread Width	- Front 1,580mm, 1,570mm (w/235 55R18 wheels)
	- Rear 1,580mm, 1,570mm (w/235 55R18 wheels)
Ground Clearance	190mm
Approach Angle	17.2 deg. 16.8 deg. (F SPORT)
Departure Angle	24.2 deg

INTERIOR DIMENSIONS

Seating Capacity	5
Headroom	- Front 970.8mm (w/o sunroof) 950.3mm (w/ sunroof)
	- Rear 968.4mm. (w/o sunroof) 967.2mm (w/ sunroof)
Legroom	- Front 1,088mm.
	- Rear 918mm
Shoulder Room	- Front 1,455mm
	- Rear 1,405mm
Hip Room	- Front 1,400mm
	- Rear 1,370mm
Cargo Volume	- Rear seats up and rearmost 580L
	- Rear seats folded down 1,625L

WEIGHTS AND CAPACITIES

Kerb Weight	1,680kg (FWD) 1,735kg (AWD)
GVWR	2,295kg (FWD) 2,350kg (AWD)
Max Towing Capacity	1,500kg (AWD & FWD)
Fuel Capacity	60L

ENGINE

Type, Materials	In-line 4-cylinder aluminum block and heads
Designation	8AR-FTS
Valvetrain	DOHC 16-valve with Dual VVT-iW (intake)
Displacement	2.0 liter twin-scroll turbocharged in-line 4-cylinder 1,998 cm ³
Bore x Stroke	86.0 mm x 86.0 mm
Compression Ratio	10.0 :1
Horsepower	175 kW @4,800-5,600 rpm
	235 hp @4,800-5,600 rpm
	238 ps @4,800-5,600 rpm
Torque	350 Nm @1,650-4,000 rpm
	35.7kg-m @1,650-4,000 rpm
Fuel System	Electronic Fuel Injection (D-4ST)
Fuel Requirement	95-octane or higher unleaded
Emission Certification	EURO 6

DRIVETRAIN

Layout	Front engine, full-time all-weather drive (AWD), or front engine, front-wheel drive (FWD)		
Transmission Type	6-speed Multi-Mode Automatic Transmission, Electronically Controlled Transmission with intelligence (ECT-i) with snow mode		
Designation	U661E	U661F	
Gear Ratios	FWD	AWD	
	1st	3.300	3.300
	2nd	1900	1900
	3rd	1420	1420
	4th	1000	1000
	5th	0.713	0.713
	6th	0.608	0.608
	Reverse	4.148	4.148
Differential Ratio	3.888/4.117 (FWD) 3.888/4.117/ 2.277 (AWD)		

PERFORMANCE

0-100 km/h Acceleration	7.3 sec (FWD), 7.1 sec (AWD)	
Top Track Speed	200km/h (124 mph)	
Fuel Consumption (City/Hwy/Combined)	10.3 / 6.2 / 7.7 (FWD) 10.4 / 6.5 / 7.9 (AWD)	
Fuel Consumption (Combined)	7.7 L/100km (FWD) 7.9 L/100km (AWD)	
CO ₂ emissions (Combined)	178 g/km (FWD), 183 g/km(AWD)	
Coefficient of Drag (Cd)	0.33	

CHASSIS AND BODY

Body/Frame	Unitized steel	
Suspension	- Front	MacPherson strut, coil springs
	- Rear	Trailing arm double wishbone type, coil springs
Steering	- Type	Electric Power Steering (EPS): Rack and pinion with electronic power assist
	- Overall Ratio	2.68:1
	- Turns (lock to lock)	2.68
	- Turning Circle (wall to wall)	6.05m
Brakes	- Front - type/diameter	Ventilated Disc/17 in.
	- Rear - type/diameter	Disc with Electrical Parking Brake/ 16 in.
Wheel Size/Type	17 x 7 in. (standard) 18 x 7.5 in. (stand-alone option, Premium package and F SPORT) 225/65R17 (standard) 225/60R18 (stand-alone option, Premium package and F SPORT all-season tyre) 235/55R18 (F SPORT summer tyre)	
Tyre Size/Type	225/65R17 (standard) 225/60R18 (stand-alone option, Premium package and F SPORT all-season tyre) 235/55R18 (F SPORT summer tyre)	
Spare Tyre/Wheel	T165/80D17 Compact spare	



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