Lexus IS F High-Performance Sedan Enhanced for 2010

- Limited Slip Differential, iPod®/USB Connectivity, Streaming Audio New for 2010
- World's First Eight-Speed Sport Direct-Shift Automatic Transmission
- New 19-Inch Wheel Design

The Lexus IS F high-performance sedan is the first production model to wear the brand's "F" marque. First launched in 2008, the 2010 model features several technology options and new standard equipment. Limited slip differential, a new 19-inch wheel design and foldable rear headrests are standard on the high-performance sedan.

To further enhance the driving experience, iPod®/USB connectivity, streaming audio via Bluetooth® and an integrated XM® satellite radio receiver (complimentary 90-day trial subscription) are added to the standard Lexus Premium Sound System. The optional Lexus Navigation system has been updated with Voice Command casual-language voice recognition and Bluetooth® phonebook download capability. The navigation system also comes XM® NavTraffic/Weather/Sports/Stocks ready and includes a complimentary 90-day trial subscription. Finally, two all-new telematics products are available with a complimentary one-year trial subscription. Lexus Enform™, which automatically comes with Safety Connect, is only available with navigation-equipped vehicles. Safety Connect™ is standard.

Engine/Transmission/Drivetrain/Performance

The Lexus IS F is exclusively powered by a performance-tuned 5.0-liter V8 engine teamed to an eight-speed Sport Direct Shift transmission. The IS F engine produces 416 horsepower at 6,600 rpm and 371 lb.-ft. of peak torque at 5,200 rpm. The engine's high specific output (83.2 hp/liter) and high operating range (6,800 RPM redline) reflect the thorough attention to detail underlying the core engineering. The resulting performance character, while quite responsive in low-speed situations, provides a rush of power at higher engine speeds.

The forged crankshaft features journals polished to a mirror finish to minimize the friction generated between the connecting rods and the crankshaft. Forged sintered iron alloy connecting rods ensure high-rpm durability. High-flow cylinder heads designed by Yamaha have a lightweight valvetrain, including forged cam lobes on hollow, chain-driven camshafts, with the inside of the shafts serving as oil passages. Titanium intake valves are operated by roller rocker arms.

Innovative technologies help to maximize efficiency and reduce emissions, including the SFI D-4 fuel injection (direct-to-cylinder injection system with secondary port injectors) and the Electronic Throttle Control System with intelligence (ETCS-i). Essentially, SFI D-4 integrates two types of fuel injection: A direct-type high-pressure fuel injection system, which provides a cooling effect in the cylinders and enables the high compression ratio (11.8:1) employed to extract maximum energy from the fuel; a set of low-pressure port fuel injectors that help produce a precise burn to optimize power and efficiency under light- and medium-load conditions.

A dual air-intake system uses a primary intake passage for low and medium engine speeds. In the higher engine speed range (above 3,600 rpm), both the primary and secondary passages are opened, helping boost high-rpm power.

With the IS F 5.0-liter V8, Lexus made a leap in valve-control technology with the Variable Valve Timing with intelligence and Electrically controlled intake cam (VVT-iE). An electric drive motor alters the intake camshaft phasing, which made it possible to expand VVT operational range to lower engine speeds, where engine oil pressure is usually not high enough to operate conventional VVT. The exhaust camshaft uses hydraulically controlled variable valve timing.

A scavenge pump forces oil from the cylinder heads back to the oil pan, ensuring a reliable oil supply even during cornering that exceeds one g. The low-restriction dual-exhaust system terminates in distinctive stacked quad diffusers.

The world's first eight-speed Sport Direct-Shift automatic transmission combines the performance characteristics of an automated manual-type transmission with the smoothness and refinement of a planetary-type automatic transmission. As a result, the driver can choose between ultra-quick manual shifts for performance driving and smooth automatic shifts when convenience is the top priority.

Eight speeds allow gear ratios that maximize torque up to the tire-grip limitations in the lower ranges while optimizing efficiency. Intuitive powertrain control optimally smoothes out off-the-line response. Artificial Intelligence-SHIFT (AI-SHIFT) complements the driver's Sport switch selection by automatically adapting the shifting based on road conditions and driver input. The IS F transmission is also highly responsive to uphill/downhill driving, always selecting the best gear for power or engine braking.

The driver can shift manually using either the console shift or steering-wheel-mounted paddle shifters. New hydraulic-control technology allows the IS F’s eight-speed Sport Direct Shift transmission to perform on par with manual transmissions without sacrificing the smoothness of a torque-converter automatic. Paddle-shifting operation is allowed in either D or M modes, but shifts are quicker and more direct in M mode. In M mode, the transmission will hold each gear to the 6,800-RPM redline, and upshifts are executed in just one-tenth of a second. At higher engine speeds, downshifts are accompanied by automated and precise throttle blips to match engine rpm to vehicle speed.

Chassis/Body/Suspension/Tires/Brakes

The Lexus IS F is based on the robust IS platform, which was engineered from the start to allow a high dynamic envelope. The stiff body structure and the rear subframe are connected through several reinforcements. Much of the IS F development took place at racetracks around the world, including Germany's legendary Nurburgring Nordschleife, Circuit Paul Ricard in France, Japan's Fuji Speedway and the Higashi-Fuji Technical Center in Japan. Fuji Speedway is the IS F's home circuit, and the shape of its turn one inspired the F-logo design.

Although using the basic double-wishbone front suspension and multi-link rear suspension configurations of the IS platform, the IS F features a multitude of track-proven modifications. The IS F sits an inch lower on its suspension than the standard IS models, which lowers the center of gravity and helps provide a quicker handling response.

Spring and damper rates are increased, and larger-diameter stabilizer bars are used. The rear-suspension control arms are specific to the IS F to optimize geometry for the 19-inch wheels. In addition, the monotube shock absorbers use a larger-diameter piston rod. As on other IS models, the sophisticated shock-absorber design utilizes multi-leaf linear control valves to help improve damping force, and rebound springs offer improved body control without degrading ride comfort.

Subframe suspension mounts are stiffer than on other IS models to help reduce sway and ensure control under acceleration and braking. The engine mounts are also stiffer for a more direct feel. Special jounce stoppers on both the front and rear suspension come into play early in the compression stroke to help reduce the sway angle when cornering and to reduce dive when braking. The Electric Power Steering (EPS) system has been remapped for improved steering response and feel while providing precise control and excellent straight-line control.

The front wheels are 19 x 8J, with 225/40R19 tires and 19 x 9J in the rear, with 255/35R19 tires. Michelin Pilot Sport PS2 and Bridgestone Potenza tires were each developed specifically for the 170-mph track capability of the Lexus IS F. High-rigidity hub unit bearings are engineered for rigorous, high g-force track driving. The direct-type tire pressure monitoring system allows two sets of tires to be registered, giving the customer the benefit of a system with a set of track tires or winter tires. The multi-information display indicates the tire selector switch.

A specially calibrated version of Lexus' innovative Vehicle Dynamics Integrated Management (VDIM) system helps provide superior handling dynamics and traction control. Combining input from a variety of sensors, VDIM is designed to anticipate the onset of a vehicle skid or slide and help correct the situation with a combination of braking, steering and throttle control in a way that is essentially transparent to the driver. VDIM integration provides precise management for EPS, Vehicle Stability Control (VSC), traction control (TRAC), the Anti-lock Braking System (ABS), Brake Assist (BA), Electronic Brake force Distribution (EBD), and engine torque (via the electronically controlled throttle).

VDIM also provides an electronically controlled brake-based limited-slip differential effect on the rear wheels. During cornering, VDIM suppresses any tendency for the inside wheel to spin, transmitting more power to the outside wheel to help maintain traction and momentum. When braking on a mixed-friction surface, VDIM will direct steering assist in the direction that will help provide the greatest control.

Using a dashboard switch, the driver can select Normal, Sport or Snow driving modes. In Sport mode, VDIM allows higher dynamic thresholds before intervening and alters steering assist to increase steering feel. Sport mode helps provide excellent optimal vehicle control on a track in areas where the skills of even top-level drivers are challenged. The experienced driver can disengage VSC/TRAC by pressing and holding the TRAC-off button for more than three seconds. Even with VSC/TRAC disengaged, however, the system still provides the brake-based limited-slip differential effect and ABS.

Brembo® brakes were designed to the specifications of the Lexus engineering team. The 14.2-inch ventilated, drilled front rotors are gripped by rigid, powerful six-piston aluminum calipers, while the 13.6-inch ventilated, drilled rear rotors use two-piston calipers. Front bumper ducts adjacent to the fog lamps stream cooling air to the brakes. The brakes are finished with the Lexus name displayed on the calipers.

Safety/Security Features

Passive-safety technology in the IS F begins with a reinforced passenger compartment that helps protect the occupants with front-and-rear crush structures. Seatbelt pre-tensioners and force limiters are used for all seating positions.

In addition to advanced dual-stage front airbags and front seat-mounted side airbags, the Lexus Supplemental Restraint System (SRS) includes side-curtain airbags that extend from A-pillar to C-pillar, plus knee airbags for the driver and the front passenger.

The available Pre-Collision System (PCS) can help reduce collision damage. The package includes Dynamic Radar Cruise Control, which uses millimeter-wave radar to measure and maintain a pre-set distance from a vehicle traveling ahead. PCS relies on the radar sensor to detect obstacles in front of the car. The PCS computer, taking sensor inputs from vehicle speed, steering angle and yaw rate, is designed to determine whether a collision is unavoidable. In such a situation, PCS preemptively retracts front seat belts and pre-initializes BA so that increased braking will be applied the instant the driver depresses the pedal.

The rear back-up camera, included with the available navigation system, automatically projects an image of what its lens can detect behind the car onto the navigation screen when the transmission is in reverse. The available Intuitive Park Assist (IPA) system uses ultrasonic sensors to detect objects close to the car's front and rear bumpers, alerting the driver and showing distance to objects in the multi-information display within the speedometer. When the IS F is equipped with the navigation system, information on detected objects is shown in greater detail on the seven-inch touch screen display.

Luxury/Comfort/Convenience

The IS F interior features specially shaped and trimmed seats that help hold the driver comfortably and securely. The standard SmartAccess keyless entry and push-button start allows the driver to keep the access fob in a pocket or purse.

Standard amenities include 10-way power front seats; dual-zone automatic climate control, a pollen filter and smog detector; power moonroof with one-touch open/close and seven open-position settings; power tilt-and-telescoping steering wheel; three-position memory function for front seats, steering wheel and mirrors; all power windows with automatic up/down operation and jam protection; an auto-dimming rear-view mirror with HomeLink® programmable garage door opener; automated rain-sensing wipers and heated auto-dimming outside mirrors with integrated puddle lamps.

The air conditioning system's electrically controlled variable compressor adjusts output to demand rather than simply cycling on and off. The system can independently adjust upper and lower temperatures in response to ambient conditions or sunlight. UV-reducing, heat-absorbing glass is used throughout the car.

The standard Lexus Premium Audio System features a six-disc, in-dash CD changer, 13 speakers and an integrated satellite radio receiver. Automatic Sound Levelizer (ASL) maintains consistent sound levels in response to varying extraneous noise levels. Convenient USB- and mini-jacks in the center console enables connection of an iPod® or other portable music players.

Luxury Options

Like all Lexus models, the IS F offers a Mark Levinson® Premium Surround Sound Audio System. This 14-speaker audio system features discrete 5.1 multi-channel playback with 7.1-channel speaker architecture. Its 10 amplifier channels provide 300 watts total output at less than 0.1 percent total harmonic distortion from 20 to 20,000 Hz (THD all channels driven). The Mark Levinson system plays conventional CDs and DVDs, plus MP3/WMA-formatted CDs. DVD movies can be viewed on the navigation system's color seven-inch touch screen when the parking brake is engaged.

Exterior Design

Based on the IS luxury sport sedan, the IS F is clearly differentiated when viewed from the front, rear and in profile. A trapezoid-shaped front bumper fascia, a theme that is repeated at the rear, sets off the V-shape grille. The hood’s raised center section makes room for the V8 powerplant, and the front fenders were widened to envelop the 19-inch low-profile tires. Total grille area is increased to ensure adequate cooling for the 5.0-liter V8, and both upper and lower grilles feature a special wire-mesh pattern. The lower grille is flanked by large brake cooling ducts adjacent to standard fog lamps. The front fenders wear a discrete silver, black and blue "F" marque.

The car’s wedge-like profile is accentuated by functional front fender air outlets with lower edges that transition into larger rocker panels and continue as a character line into the rear bumper. The rear view conveys a strong parting signature for the IS F, with a dramatic trapezoid shape and easily recognizable design elements.

Four vertically stacked exhaust diffusers, two per side, are integrated into the rear bumper. Above them, light-emitting diode (LED) stop and tail lamps behind clear lenses give the IS F a unique nighttime appearance.

The subtle rear spoiler is one of many aerodynamic enhancements, which also include special underbody panels to optimize airflow. Contributing to both design and performance, new 19-inch forged-alloy wheels produced by BBS® feature a distinct dark-gray finish and an asymmetrical 10-spoke design.

Interior Design

The interior of the IS F features an exclusive design treatment highlighted by aluminized composite trim, striking two-tone upholstery, aluminum-rimmed main gauges, unique steering-wheel treatment and other special surface treatments. The instrument panel integrates an oil-temperature gauge, voltmeter and shift-indicator lights, and the "F" logo is discretely showcased on the steering wheel, rear-center console and outer seat cushions. A multi-information display located within the speedometer integrates a trip computer that provides outside temperature, driving range, average fuel consumption, average fuel consumption since refueling (per tank), current fuel consumption, average speed and the F logo. The display also includes an oil-maintenance reminder and system warnings.

Lexus Enform™ and Safety Connect™

The Lexus IS F offers an all-new telematics system, Lexus Enform™ with Safety Connect™, available by subscription. Complimentary one-year trial subscriptions are included on all purchases of new Lexus vehicles equipped with these features. Both the Lexus Enform and the Safety Connect response center operate 24 hours a day, 7 days a week—every day of the year.

Safety Connect, the cornerstone of the services, is available on both non-navigation and navigation-equipped IS F and offers four safety and security features: Automatic Collision Notification, Stolen Vehicle Location, Emergency Assistance Button (SOS), and Enhanced Roadside Assistance, which adds GPS data to the already included warranty-based Lexus roadside service.

Lexus Enform, available only on navigation-equipped vehicles, includes all of the Safety Connect features and builds upon them with the premium services of Destination Assist and eDestination. Destination Assist agents are available via the on-board cellular equipment and can help drivers find a specific address, a business by name, or a type of business (e.g., gas station, movie theater, etc.), and even Zagat®-rated restaurants, and then send the coordinates to the navigation system for routing. With eDestination, drivers can go online via LexusDrivers.com to save and sort destinations in up to 20 folders, each holding as many as 10 destinations. Then drivers can send the locations—up to 200 at a time—to their vehicle, where they will be available for download into the navigation system. Online, drivers can create personalized location names (e.g., “Favorite sushi,” “1 PM Appt,” “Kids’ doc,” etc.) and even list notes about their saved locations, all helping them see exactly the information they choose in the vehicle.

Lexus Insider™, a complimentary, opt-in service is also available without a subscription on all Lexus Enform-equipped vehicles. This feature offers in-vehicle audio casts that provide owners access to useful vehicle tips and event information, and insights into exclusive owners' benefits – all designed to further enhance the Lexus experience.

XM – Beyond Radio

Lexus Enform vehicles are factory ready for subscriptions to a variety of innovative XM services. An integrated XM® satellite radio receiver is standard. Additionally, Lexus Enform vehicles feature XM NavTraffic® and XM NavWeather™ services. XM NavTraffic informs the driver of current traffic conditions with real-time traffic displays. When traffic problems are detected the navigation system alerts the driver so that the route can be adjusted. XM NavWeather provides near real-time weather conditions as well as spoken and nav-screen forecasts, both based on official National Weather Service data.

Lexus Enform also provides the platform for XM® Sports and Stocks, which features in-vehicle updates on sports and stocks so drivers can stay connected to their favorite teams and investment data while on the road. XM Sports provides game results and schedules for up to five personally selected national league sports teams while XM Stocks supplies data for up to 10 personally selected stocks. After inputting their selections, drivers can access the reports either by the navigation system, and the Remote Touch Controller, or by using the voice command system, adding a new level of flexibility. XM services require separate XM subscriptions. The XM Sports and Stocks service is included with an XM® radio subscription. All XM services offer complimentary 90-day trial subscriptions.

Warranty

All new Lexus vehicles come with a 48-month/50,000-mile basic limited warranty with roadside assistance for 48-months/unlimited miles. Powertrain and restraint system coverage is provided for 72 months/70,000 miles. Corrosion perforation protection is covered for 72 months, regardless of mileage.