

## **Lexus IS F Dynamics: Vehicle Dynamics Integrated Management System**

Many a driver of high-performance cars will tell you “I don’t need any help from electronic nannies (when driving at speed).” But as vehicle dynamics engineers continue to develop their systems and the electronics continue to improve, this sentiment begins to look not only obsolete, but also a bit naïve.

When Lexus first applied its innovative Vehicle Dynamics Integrated Management (VDIM) system on the IS 350, it set system parameters for general users in a wide variety of conditions. And while it works seamlessly and effectively, more experienced (read: pro) drivers wished for a little wider performance envelope. More recently, Lexus added the ability to temporarily disengage vehicle stability control (VSC) and traction control (TRAC).

The introduction of the IS F brings a much more interesting version of VDIM that, in addition to the “Normal” and “Off” modes, adds a “Sport” mode that nicely resolves the argument between “yeehaw” and “save your bacon.”

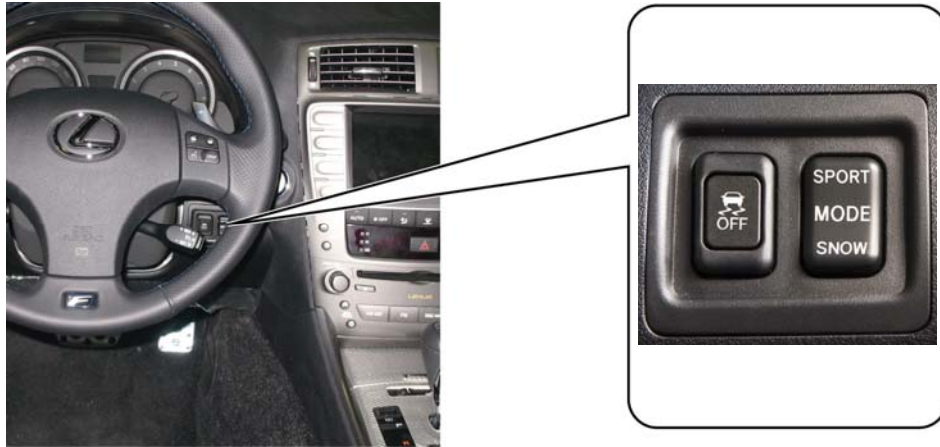


### **Playing Nice Together**

Fundamentally, VDIM is a sophisticated electronic system that coordinates the key vehicle systems responsible for control of dynamic behavior. They include the brake system, TRAC, VSC, steering assist and engine torque. VDIM manages this task by taking input from a number of sensors around the car and issuing coordinated commands. This endows the vehicle with the ability to anticipate the onset of a skid or slide and helps provide smooth, balanced control that feels natural to the driver. Before VDIM, these systems acted more independently and could sometimes feel abrupt in certain conditions.

## Sharpening the Focus

With the new Sport mode, the IS F becomes a more focused performance car, as a comprehensive “adjustment” of several elements makes it even more rewarding to drive.



When the mode switch is set to “Sport,” several changes occur:

- Two of these changes, while not involved with VDIM per se, play a role in the feel and performance of the car. One is the electronic power steering (EPS) system, which adopts a different assist curve that increases steering effort to make the car feel more direct and engaging. The other is the transmission, which gets modified shift feel and timing to emphasize performance.
- Throttle control is also modified to produce quicker response to a given throttle angle.
- Most importantly, VSC and TRAC are modified in a way that helps the driver dig deeper into the limits of the dynamic threshold. More lateral acceleration = quicker lap times. Good thing the cupholders are deep.

VDIM Sport mode works so well that it’s difficult for even highly-skilled drivers to lap faster on a circuit with the system completely off than when it’s on. It’s not only rewarding; It can also make you look very good—and still save your bacon.

