

# CENTER FOR AUTO SAFETY

1825 CONNECTICUT AVENUE NW SUITE 330 WASHINGTON DC 20009-5708  
202-328-7700 ◆ www.autosafety.org

December 1, 2009

## VIA FAX AND FIRST CLASS MAIL

National Highway Traffic Safety Administration (NHTSA)  
Executive Secretariat  
1200 New Jersey Ave. SE  
West Building  
Washington, DC 20590

## FOIA REQUEST

Dear FOIA Officer:

The Center for Auto Safety ("CAS") files this request pursuant to the Freedom of Information Act ("FOIA"). CAS is a nationwide nonprofit consumer advocacy organization established in 1970 by Consumers Union and Ralph Nader. CAS works toward improved safety, environmental responsibility, and fair dealing in the automotive industry and the marketplace.

**CAS seeks the following information regarding the attached "Final Report: 2007 Lexus ES-350 Unintended Acceleration":**

- (1) Any and all records relating to or describing test protocols including the maneuver used to activate the ESC**
- (2) any records of meetings or communications with Toyota including emails, meeting minutes, telephone notes, letters**
- (3) any records regarding the cost of the test or expenditure or authorization of federal funds**
- (4) any records pertaining to the actual 2007 Lexus ES-350 tested including how it was obtained, how it was prepared for testing as well as any records on its maintenance and condition prior to testing & any records on the cost of obtaining and using the Lexus.**

CAS believes that the requested records are likely to be located within the Office of Defects Investigation, the Vehicle Research and Test Center, the Office of Chief Counsel, and the Office of the Administrator. These documents may include electronic as well as paper records. Also, pursuant to 5 U.S.C. § 552(a)(4)(A) and U.S. Department of Transportation regulations set forth at 49 C.F.R. § 7.44, CAS requests, and NHTSA should grant, a waiver and/or reduction of fees for processing this FOIA request, including search, review, and duplication charges, for the reasons given below.

49 C.F.R. § 7.44(a) and (c) provide that a fee is not to be charged for the first two hours of search time or the duplication of the first 100 pages, "unless the records are requested for commercial use." In addition, 49 C.F.R. § 7.44(d) states that review fees for determining whether the requested records are exempt from mandatory disclosure may not be charged when records are not requested for a commercial use. The above information request is of a very limited and highly specific nature, and CAS believes that these records have no commercial value whatsoever. Even if the requested records had some potential commercial value, CAS has no commercial purpose or interest in requesting them. See Attachment A. Therefore, NHTSA should fully apply the subsection (a), (c) and (d) allowances to this request.

Should NHTSA deny the waiver of fees, CAS asks that the Agency to obtain authorization from CAS before delivery of any materials. If the agency refuses access to any of the requested records, please describe the materials it wishes to withhold and specify the statutory justifications for the refusal. Also, please state separately NHTSA's reasons for failing to invoke its discretionary powers to release the materials in the public interest.

If you have any questions about the scope of this request, or if you believe there are any ambiguities in the way CAS has framed its request, please let me know as soon as possible.

CAS looks forward to a response within twenty working days, as required under the FOIA, and will interpret any delay in response as a denial of this request. Thank you for your very prompt attention to this matter.

Sincerely,



Michael Brooks  
Staff Attorney

Attachment(s): 2

# CENTER FOR AUTO SAFETY

1825 Connecticut Avenue, NW Suite 330 Washington, DC 20009-1160 (202) 328-7700

Attachment A

## MISSION STATEMENT

The Center for Auto Safety (CAS) is a nonprofit research and advocacy organization founded by Consumers Union and Ralph Nader in 1970 to provide consumers with a voice for auto safety and quality in Washington, D.C. and to assist owners of "lemon" vehicles to file complaints and obtain relief. Although CAS has a staff of less than a dozen people, its work is supported by approximately 20,000 members across the United States, and it is nationally recognized as a leader in the areas of automobile safety and consumer protection.

CAS vigorously supports economically feasible motor vehicle safety policies that will reduce the risk of crash-related deaths and injuries. CAS serves as an important counterweight before federal policymakers to the automobile industry, whose positions on these safety issues are dictated by the desire to maximize profits for shareholders rather than to strike the proper balance between safety and other vehicle features.

In fulfilling its mission, CAS is engaged in the following activities:

- Researching defects in motor vehicles and monitoring defect investigations conducted by the National Highway Traffic Safety Administration (NHTSA) and other federal agencies;
- Obtaining information on potential vehicle safety defects from consumers, alerting NHTSA to these problems, and requesting that NHTSA undertake investigations;
- Responding with comments to agency rulemaking proposals and other initiatives that affect motor vehicle safety;
- Supporting motor vehicle safety legislation before Congress, including testifying at public hearings and advocating with members of Congress and their staffs;
- Monitoring enforcement of federal vehicle safety laws by NHTSA and other federal agencies;
- Furnishing consumers with free information packets that detail the performance and safety problems of vehicles by make, model, and model year; and
- Providing free information to consumers about state "lemon laws" and automobile manufacturers "secret warranties" (where the auto manufacturer has an internal policy to pay for repairs beyond the limits of the express warranty) to assist consumers with complaints against manufacturers or dealers.

A key pillar of CAS's mission is actively to disseminate the information that CAS gathers to the public so that consumers are better informed about motor vehicle safety issues. CAS regularly distributes a newsletter to its 20,000 members. CAS is also establishing a website that will provide information on a range of motor vehicle safety topics. In addition, because members of CAS's staff are recognized as leading experts on motor vehicle safety, CAS officials regularly appear on television and radio, and they are frequently quoted in the print media. CAS staff members also write op-ed pieces for national and local newspapers. Finally, CAS forms coalitions with some of the nation's leading individual and organizational advocates for motor vehicle safety, and CAS encourages these safety leaders to disseminate the information gathered and produced by CAS to their memberships and contacts. These other organizations, such as Public Citizen and its approximately 100,000 members, Consumers Union, and the Consumer Federation of America, routinely utilize information and analysis provided to them by CAS.



U.S. Department  
of Transportation

National Highway  
Traffic Safety  
Administration

# Memorandum

Vehicle Research and Test Center P.O. Box 837  
East Liberty, Ohio 43318  
(937) 666-4511

Subject: FINAL REPORT: "2007 Lexus ES-350 Unintended  
Acceleration"

Date: APR 30 2008

From:   
Michael W. Monk  
Director, Vehicle Research and Test Center

Reply to NVS-310  
Attn. Of:

To: Kathleen DeMeter  
Director, Office of Defects Investigation

NVS-210

Attached are four (4) copies of the subject report. This completes the requirements for this program.

Attachment:  
Final Report

#



AUTO SAFETY HOTLINE  
(800) 424-9393  
Wash. D.C. Area 368-0123

**VRTC MEMORANDUM REPORT EA07-010  
VRTC-DCD-7113**

**2007 Lexus ES-350 Unintended Acceleration**

**1.0 Introduction**

This program was performed at the Vehicle Research and Test Center (VRTC) at the request of the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration. ODI opened an Engineering Analysis (EA07-010) on 2007 Lexus ES-350 vehicles to investigate reports of unintended acceleration.

**2.0 Objectives**

- 2.1 Determine whether reported incidents of unintended acceleration were caused by a vehicle system malfunction or mechanical interference;
- 2.2 Understand and document the effects of unintended acceleration as they impact controllability of the vehicle;
- 2.3 Document potential difficulties experienced by the operator while attempting to regain control of the vehicle.

**3.0 Project Tasks**

**3.1 Dynamic Instrumented Vehicle Testing**

The Vehicle Research and Test Center obtained a Lexus ES-350 for testing (see Figure 1). The vehicle was fully instrumented to monitor and acquire data relating to yaw rate, speed, acceleration, deceleration, brake pedal effort, brake line hydraulic pressure, brake pad temperature, engine vacuum, brake booster vacuum, throttle plate position, and accelerator pedal position. Multiple electrical signals were introduced into the electrical system to test the robustness of the electronics against single point failures due to electrical interference. The system proved to have multiple redundancies and showed no vulnerabilities to electrical signal activities. Magnetic fields were introduced in proximity to the throttle body and accelerator pedal potentiometers and did result in an increase in engine revolutions per minute (RPM) of up to approximately 1,000 RPM, similar to a cold-idle engine RPM level. Mechanical interferences at the throttle body caused the engine to shut down. Mechanical interferences at the accelerator

pedal revealed that the one-piece, non-articulating accelerator pedal assembly was easily entrapped in the groove of the rubber all-weather floor mat (Figures 2 and 3) if the rubber mat was not properly secured with at least one of the two retaining hooks (Figure 4). In many observed ES-350's, the rubber mats were stacked on top of the existing carpeted floor mats, which prevented attachment of the rubber mats and facilitated the interference failure mode. A warning is embossed on the front of the floor mat that reads "Do not place on top of existing floor mats". Very few owners interviewed were able to find or read this warning (see Figure 5).

### **3.2 Owner Surveys**

To comprehend the statistical significance of the probability for this event to occur, a survey was sent to a sample size of 1986 registered owners of a 2007 Lexus ES-350 requesting information regarding episodes of unintended acceleration. NHTSA received 600 responses for an overall response rate of 30.2%. Fifty-nine owners stated they experienced unintended acceleration. Thirty-five of those responding also reported that their vehicles were equipped with rubber Lexus all-weather floor mats and several commented that the incident occurred when the accelerator had become trapped in a groove in the floor mat. Interviews with owners revealed that many had unsecured rubber floor mats in place at the time of the unintended acceleration event, which included in some cases unsecured rubber floor mats placed over existing Lexus carpeted mats.

### **3.3 Analysis of the Effects of Unintended Acceleration on Vehicle Control**

The safety consequences of an unsecured rubber floor mat trapping the accelerator pedal with the vehicle in gear can be severe. With the engine throttle plate open, the vacuum power assist of the braking system cannot be replenished and the effectiveness of the brakes is reduced significantly. During trapped throttle acceleration testing, several methods to defeat acceleration proved effective but not necessarily intuitive. These methods included:

- 3.3.1 Application of the brake** - Significant brake pedal force in excess of 150 pounds was required to stop the vehicle, compared to 30 pounds required when the vehicle is operating normally. Stopping distances increased from less than 200 feet to more than 1,000 feet.

- 3.3.2 Turning off the ignition - In place of an ignition key, the ES-350 uses an ignition button that removes the ability to instantaneously shut off the engine in the event of an emergency while the vehicle is in motion (see Figure 6). It was found that depressing and holding the button will eventually turn off the engine after three seconds. Through the survey it was learned that the button delay operation is not widely known by owners and because of this, drivers found themselves unable to turn off the engine when the vehicle was in motion. The owner's manual makes general mention of the operation, but there is no indication of the three second hold requirement.
- 3.3.3 Placing the vehicle in Neutral - Many owners complained that the neutral gear position in the gated shift pattern was not immediately obvious, leading to unsuccessful attempts to disengage the engine from the drive wheels. On the labeled shift diagram located on the console, the Neutral "N" marking is in closest proximity to the "Sport" mode upshift gate (see Figure 7).
- 3.3.4 Activation of Electronic Stability Control (ESC) - It was discovered that if an emergency maneuver is executed that activates the Electronic Stability Control, such as steering around a sharp curve while traveling at an excessive speed, the electronic throttle is temporarily electronically closed by the vehicle control module regardless of the accelerator pedal position. With the throttle plate closed, vacuum quickly returns to the brake booster and provides a significant increase in braking capability (see Figure 8). Additionally, ESC has the capability to automatically apply hydraulic pressure to the service brakes to aid in slowing the vehicle. When the emergency maneuver is concluded however, the ESC system returns to a passive state, and the throttle again returns to an open condition leading to further unwanted acceleration.

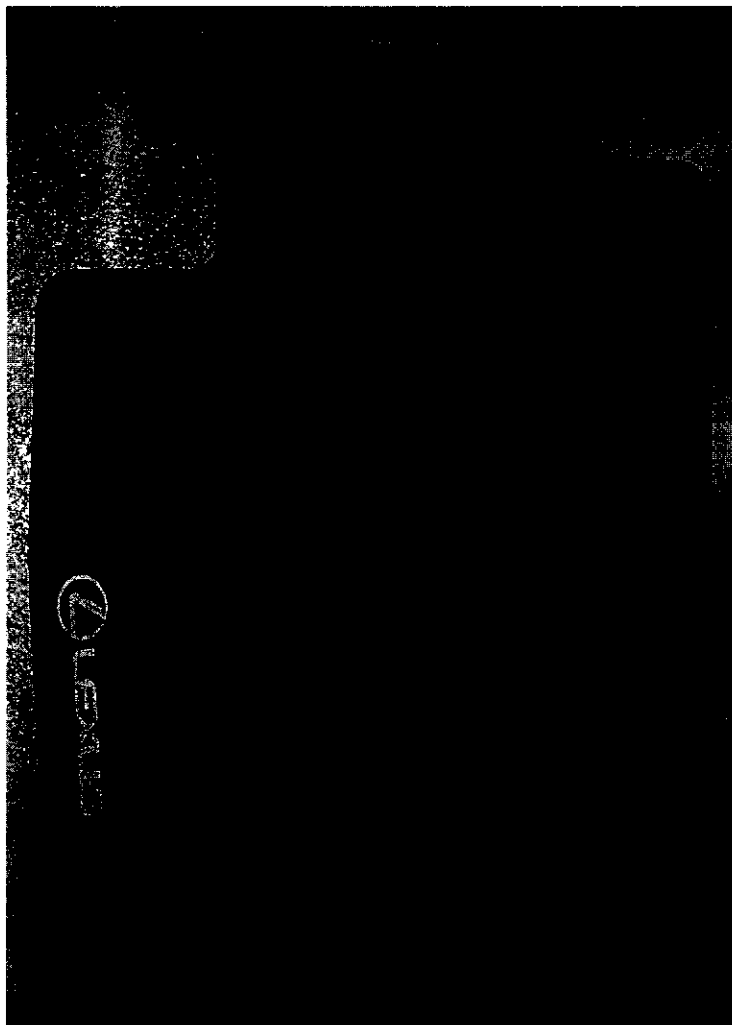
#### 4.0 Summary

- Mechanical interferences at the accelerator pedal revealed that the accelerator pedal assembly was easily entrapped in the groove of the rubber all-weather floor mat if the rubber mat was not properly secured with at least one of the two retaining hooks.
- A survey was sent to 1986 registered owners of a 2007 Lexus ES-350 requesting information regarding episodes of unintended acceleration. Of the 600 people that responded, 59 stated that they experienced unintended acceleration and 35 complained of pedal interference with the Lexus rubber all-weather floor mats.
- With the engine throttle plate open, the vacuum power assist of the braking system cannot be replenished and the effectiveness of the brakes is reduced significantly.
  - Brake pedal force in excess of 150 pounds was required to stop the vehicle, compared to 30 pounds required when the vehicle is operating normally.
  - ESC activation may restore vacuum to the brake booster, providing a significant increase in braking capability, but only until ESC activity ceases.
- The owner survey indicated the 3 second delay in the operation of the ignition button is not widely known by owners and because of this, drivers found themselves unable to turn off the engine when the vehicle was in motion.
- Many owners complained that the neutral gear position in the gated shift pattern was not immediately obvious, leading to unsuccessful attempts to disengage the engine from the drive wheels.

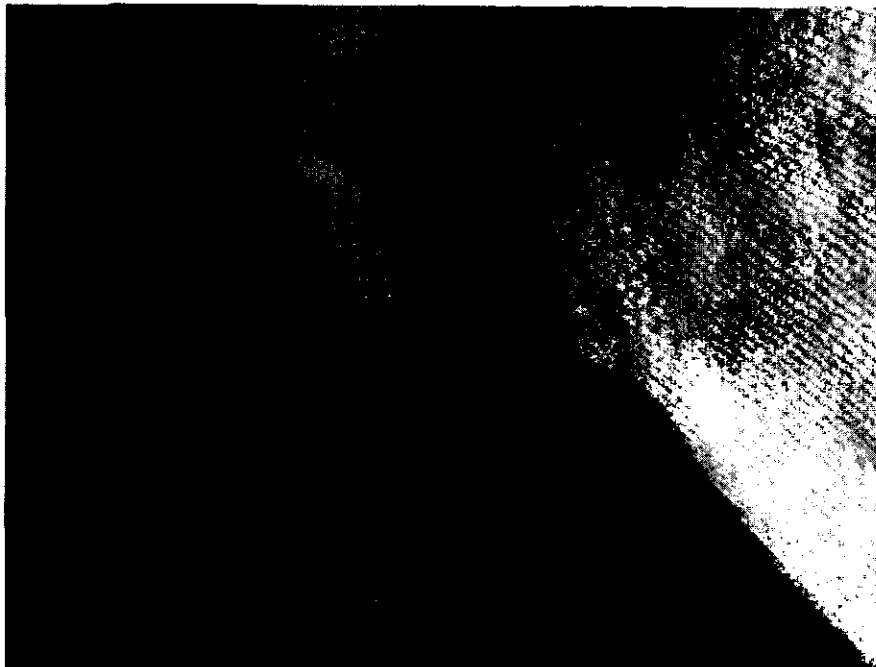




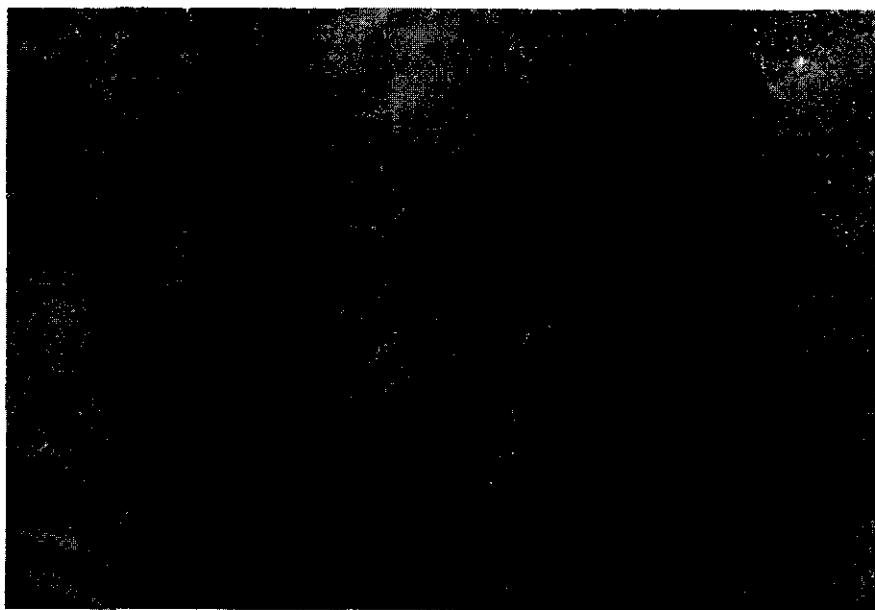
**Figure 1 – 2007 Lexus ES-350**



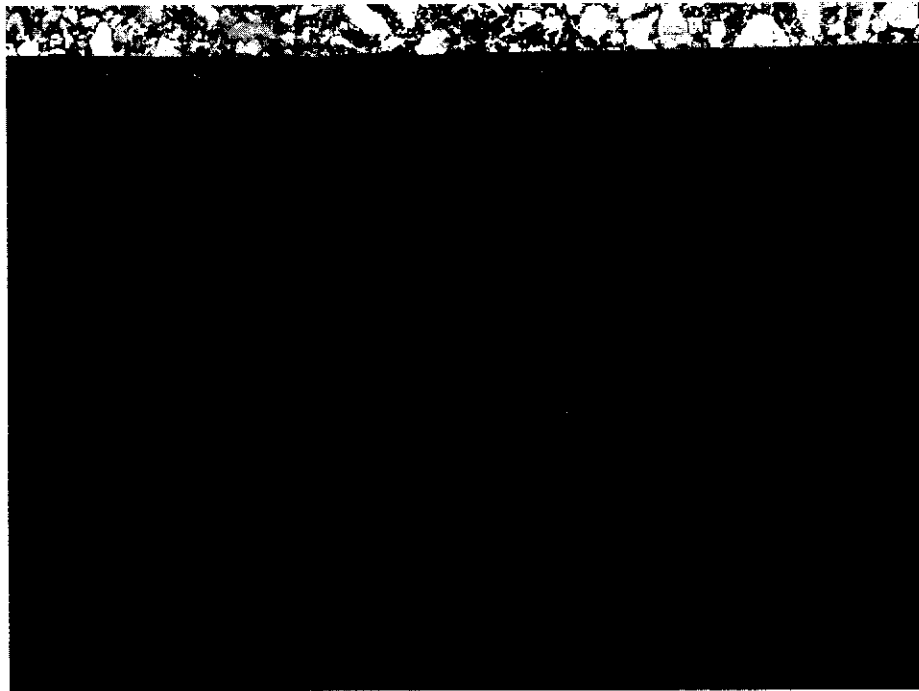
**Figure 2 – Lexus All-weather Floor Mat with Retaining Hook Holes at the Bottom**



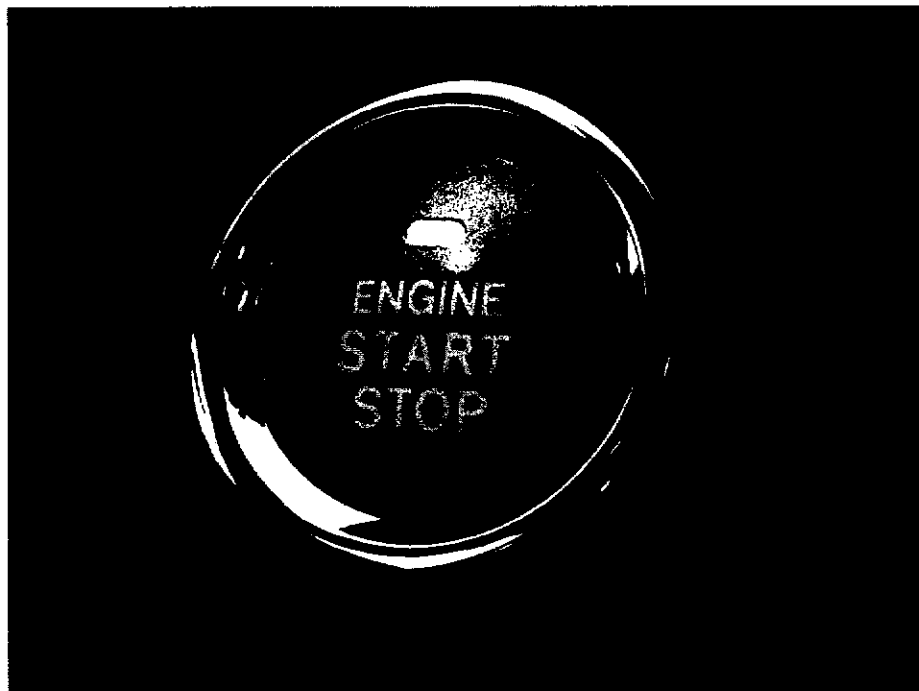
**Figure 3 – Accelerator Pedal Trapped at Full Throttle by Unsecured Rubber Floor Mat**



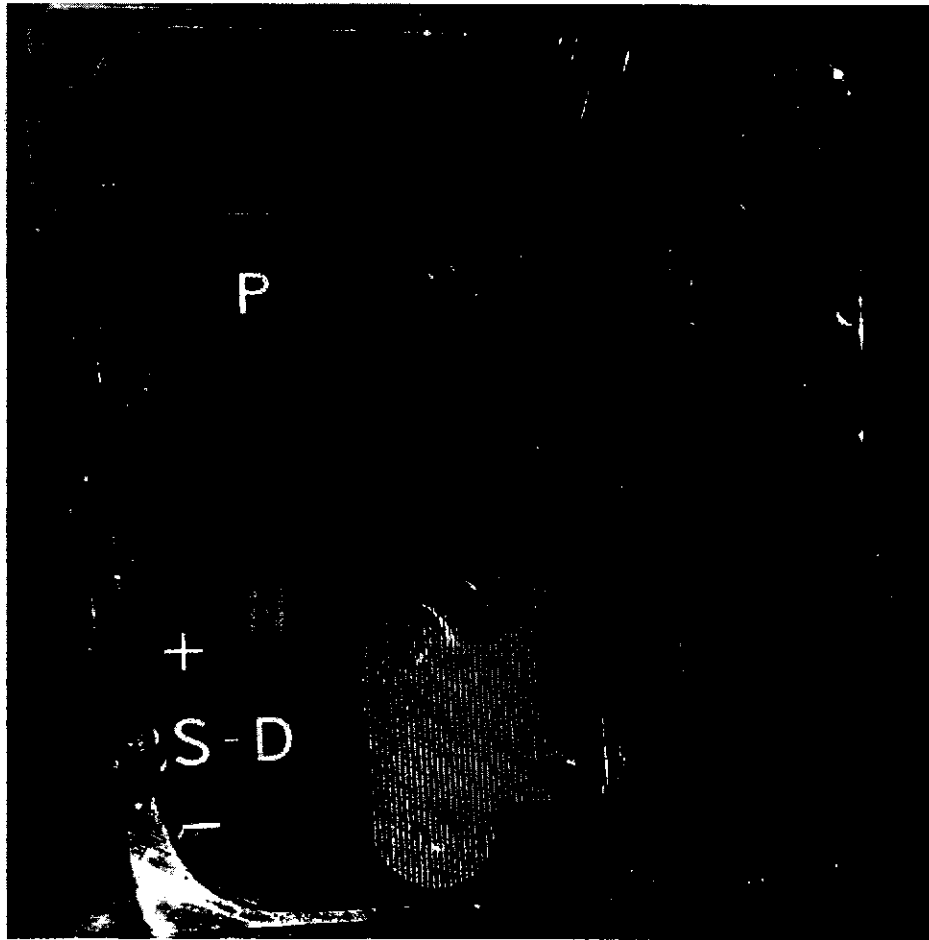
**Figure 4 –Floor Mat Retaining Clip and Carpet Receiving Eyelet**



**Figure 5 – Embossed Warning On Floor Mat States “Do Not Place On Top of Existing Floor Mats”**



**Figure 6 - Push Button Ignition Replaces Conventional Key**



**Figure 7 - Shift Gate with Diagram**

# Lexus ES350 Performance Test

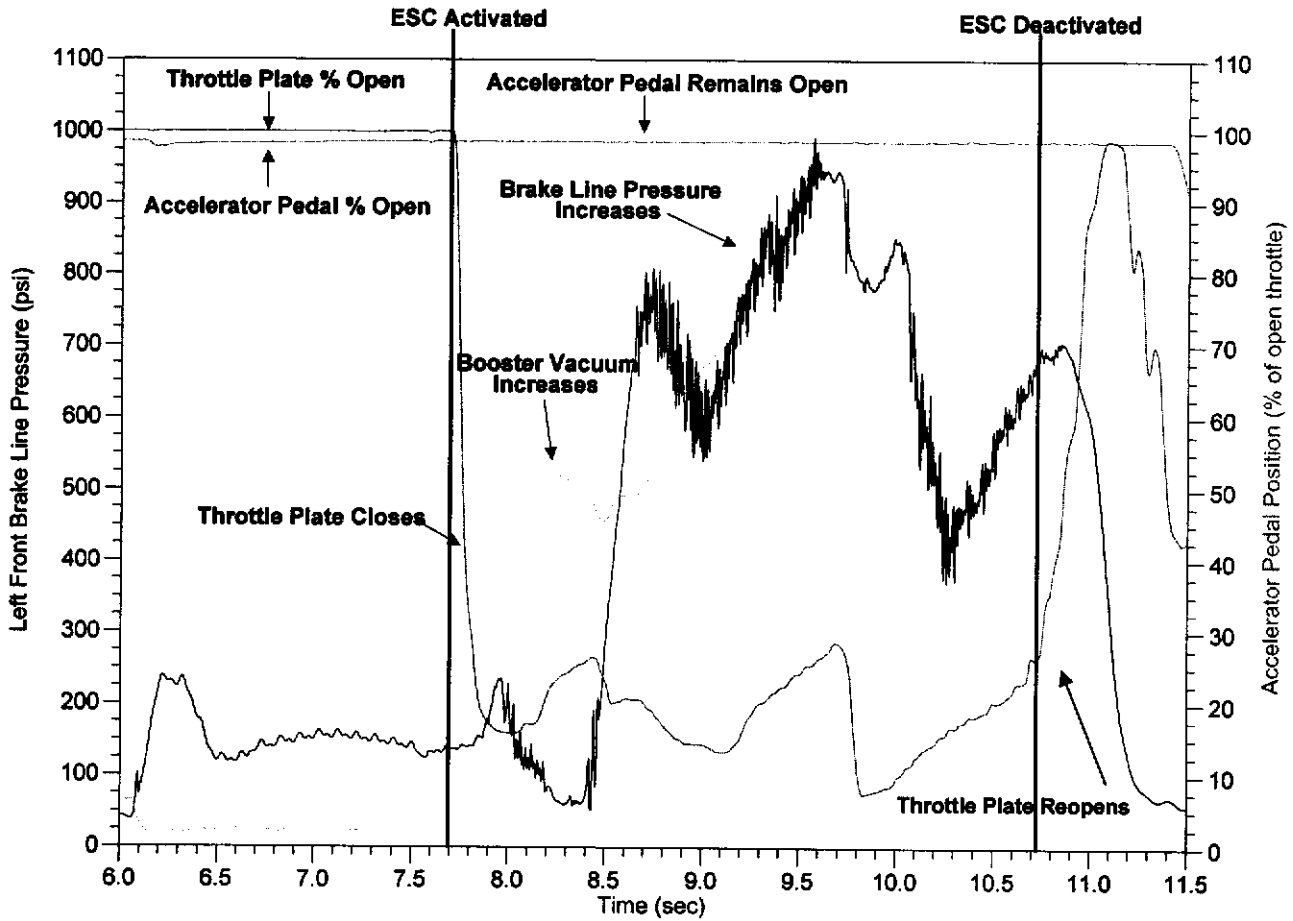


Figure 8 – Data Acquired from Lexus During Testing Indicates Engine Throttle is Overridden During ESC