

ODI Action Number: **PE99-040**

Date: **06-07-99**

Subject: **VOLVO CARS OF NORTH AMERICA, INC.  
1995 - 1998 VOLVO 850/900/70/90 SERIES**

## **ALLEGED INADVERTENT SIDE AIR BAG DEPLOYMENT FAILURES**

This file contains consumer letters received by the National Highway Traffic Safety Administration which complain of the alleged defect that is the subject of this Preliminary Evaluation. It also contains correspondence between this agency and the manufacturer on the subject. Portions of that correspondence may be withheld where the manufacturer has claimed that they are confidential pursuant to the Freedom of Information Act, 5 U.S.C. § 552(b)(4), which exempts from disclosure confidential commercial and financial information. Additional documents relating to this Preliminary Evaluation may exist, but have not been included in this public file.

If you have any information or concerns you would like to discuss with NHTSA staff, please call the

**toll free AUTO SAFETY HOTLINE**

**800-424-9393**

(in the Washington, DC metropolitan area, please call 202-366-0123)

Also, if you wish to discuss the investigation with NHTSA staff, the HOTLINE contact representative will have a technical staff member return your telephone call.



U.S. Department  
of Transportation  
National Highway  
Traffic Safety  
Administration

# ODI RESUME

*[Handwritten signature]*

INVESTIGATION: PE99- 040  
SUBJECT: Inadvertent side air bag deployment  
PROMPTED BY: IE99-043  
PRINCIPAL ENGINEER: Gregory Magno

DATE OPENED: 6-7-99

MANUFACTURER: Volvo Cars of North America, Inc.  
MODEL(S): 850/900/70/90 Series  
MODEL YEAR(S): 1995-1998  
VEHICLE POPULATION: 361,904 (Est.)

PROBLEM DESCRIPTION: Side air bag may deploy without a side impact crash.

### FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	2	Unknown	2
CRASHES:	0	"	0
INJ CRASHES:	0	"	0
# INJURIES:	2	"	2
FAT CRASHES:	0	"	0
# FATALS:	0	"	0
OTHER:	N/A	N/A	N/A

DESCRIPTION OF OTHER: N/A

ACTION: A Preliminary Evaluation has been opened.

ENGINEER: *[Signature]*

DIV CHF: *[Signature]*

OFC DIR: *[Signature]*

6/7/99

DATE

6/7/99

DATE

6/7/99

DATE

SUMMARY: ODI has received two complaints of inadvertent deployment of the passenger seat-mounted side impact air bag in Volvo vehicles, one in a Model Year (MY) 1995 850, the other in a MY 1998 S70.

The Side Impact Protection System air bag (SIPSBAG) is mounted inside the outboard portions of the subject vehicle front seat backs. In a side impact collision, the SIPSBAG is triggered by impact of the vehicle's door as it deflects inwards against the lower seat frame-mounted sensor head.

A NHTSA Special Crash Investigation (SCI) of the MY 1995 850 incident (May 1997) revealed that the passenger side SIPSBAG was triggered by compression of a hockey stick between the passenger door and passenger seat-mounted sensor head. SIPSBAG deployment occurred as the seat occupant pulled the door closed. The occupant, a 15 year old male suffered a 1 inch diameter contusion on his lateral right forearm.

ODI recently (April 1999) received a report detailing an incident in which the passenger SIPSBAG in a MY 1998 S70 deployed while its elderly female occupant was closing the door. She received injuries.

A Preliminary Evaluation has been opened to further evaluate this issue.

*[Handwritten initials]*  
6-8-99

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U.S. Department  
of Transportation  
National Highway  
Traffic Safety  
Administration

# ODI SCREEN RESUME

IDENTIFICATION: IE99-043  
 SUBJECT: Side Air Bag Inadvertent Deployment  
 PROMPTED BY: VOQ  
 INVESTIGATORS: Peter C. Ong

DATE OPENED: 20-May-99

MANUFACTURER: Volvo Cars of North America, Inc. MODEL: 850/900/70/90 Series  
 MODEL YEAR(S): 1995-1998  
 VEHICLE POPULATION: 1995-94,400 1996-88,581; 1997-88,923; 1998-90,000 (Est.) Total-361,904 (Est.)

PROBLEM DESCRIPTION: The side air bag may deploy without a vehicle crash.

## FAILURE REPORT SUMMARY

	Symptom # 1	N/A	N/A
COMPLAINTS:	2		
# CRASH	0		
# INJURIES:	2		
OTHERS:			

DESCRIPTION OF SYMPTOM (S): #1. Deployment of a side air bag when the vehicle was not side impacted. The vehicle was stationary.

ACTION: Recommend opening an investigation

INVESTIGATOR: *Peter C. Ong*  
 DATE: *5/20/1999*

DIVISION CHIEF: *Sergeant [Signature]*  
 DATE: *5/20/1999*

SUMMARY: ODI has received a complaint this past week alleging that the 1998 Volvo's Side Impact Protection System Airbag (SIPS Airbag) inadvertently deployed when the passenger door was being closed. According to the complainant, two elderly friends entered the passenger side seats (one in the front and the other in the rear), as the door was shut in the front passenger side, the SIPS Airbag deployed. The front passenger allegedly received injuries to the upper arm and shoulder. The rear passenger door was still open at the time of the incident.

The Special Crash Investigation Office (SCI) investigated a similar incident in 1997 on a 1995 Volvo 850 SIPS Airbag inadvertent deployment. The passenger was also injured from the SIPS Airbag inadvertent deployment.

ODI influenced BMW to recall model year 1999 3-Series vehicles for side impact air bag inadvertent deployment (99V063).

An investigation is recommended to ascertain the scope of the issue.

JUN 21 1999

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

William Shapiro, P.E., Director  
Regulatory Compliance & Environmental Affairs  
Volvo Cars of North America Inc.  
7 Volvo Drive - Bldg A  
Rockleigh, N.J. 07647-0913

NSA-122gem  
PE99-040

Dear Mr. Shapiro:


This letter is to advise you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) is conducting an investigation concerning inadvertent side air bag deployment in certain Model Year (MY) 1995-1998 850, 900, S/V70, and S/V90 vehicles manufactured by the Volvo. As part of the investigation, this letter requests information from Volvo.

This office has received 2 reports of inadvertent side air bag deployment in certain Volvo vehicles: One report concerned a MY 1998 S70, the other, a MY 1995 850. In both cases, the passenger seat back-mounted side impact air bag deployed when the seat occupant pulled the door closed. A copy of each of the reports and of the NHTSA Special Crash Investigation (SCI) report pertaining to the MY 1995 850 is enclosed for your information.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** all MY 1995-1998 800-series, 900-series, S/V70, and S/V90 vehicles equipped with the SIPSbag side impact air bag system manufactured for sale in the United States.
- **Manufacturer:** Volvo Motor Cars, all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged by or under the control of Volvo (including all business units and persons previously referred to) who are or, in or after 1996, were involved in any way with:
  - a. design, engineering, analysis, modification or production (e.g. quality control);
  - b. testing, assessment or evaluation;

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- c. consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
  - d. communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
- **Alleged defect:** deployment of the side impact air bags without inwards deflection of the vehicle door as specified in SAE paper 950878 "*SIPSBAG - The Seat-Mounted Side Impact Airbag System.*"
  - **Document:** "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all nonidentical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Volvo, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a nonidentical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by the Volvo or not. If a document is not in the English language, provide both the original document and an English translation of the document.
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In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Please repeat the applicable request verbatim above each response. After (Volvo's) response to each request, identify the source of the information and indicate the last date the source updated the information prior to the preparation of the response. Insofar as Volvo has previously provided a document to ODI, Volvo may either produce it again, or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. Previously submitted complaints and field reports do not need to be provided. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the Information Request letter (including the subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

If Volvo cannot respond to any specific request or subpart thereof, please state the reason why it is unable to do so. If Volvo claims that any document or other information or material responsive to any of the following items need not be provided to NHTSA because it is privileged or the work product of an attorney, separately by information request number, for each document or other information or material, state the nature of that information or material and identify any document in which it is found by date, subject or title, name and position of the person from, and the person to whom it was sent, and the name and position of any other recipient. Volvo must also describe the basis for the claim, and explain why Volvo believes it applies.

1. State the total number of subject vehicles sold in the United States by model name, model year, and build month.
2. State the number and provide copies of all documents relating to the following, from all sources, of which Volvo is aware and which relate, or could relate to the alleged defect in the subject vehicles:
  - a. owner/fleet complaints;
  - b. field reports;
  - c. injury incident claims;
  - d. subrogation claims;
  - e. lawsuits; and
  - f. third-party arbitration proceedings (where Volvo is a party to the arbitration).

Please list and collate your response for each category ("a" through "f") by date of claim. For each item in this response please provide the vehicle owner's name, address, and telephone number; and identify all vehicles by vehicle identification number, model name, model year, build date, in-service date, incident date, vehicle mileage at the time of the incident, problem description, disposition of matter, and, where a fleet vehicle is involved, the name of the fleet, and the name and telephone number of a contact person at that fleet. For items "a" through "d," please provide all related information and reports whether or not Volvo has verified each one. For items "e" and "f," summaries are acceptable. Please

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identify in the summary the caption, court, docket number, and filing date of each lawsuit if a copy of the complaint initiating the lawsuit is not provided.

3. Provide a listing of all repairs and/or replacements, relating to the alleged defect (i.e. replacement of the noncrash-deployed SIPSbag), performed by Volvo. In this list include the following information, in this order: part numbers of any parts replaced, vehicle model, model year, build date, in-service date, repair date, repair mileage, VIN, repairing zone and dealer ID numbers. For each replacement, identify which side it came from (driver or passenger) and any circumstances leading to its deployment.

Please identify which of these repairs were performed under warranty or good will terms.

4. If Volvo has issued any service or technical bulletins, advisories, or other communications to dealers, zone offices, or field offices pertaining to the alleged defect in the subject vehicles, provide a copy of each such document. If no such documents have been issued, so state. For each item identified, please provide the following information:
  - a. A complete chronology listing all activities or events including, but not limited to, incidents involving the subject component, which led Volvo to believe it needed to undertake the communication.
  - b. A listing (in chronological order) of all information related to any testing through which the need for the communication was identified and/or assessed, even if the testing was being conducted for another purpose. Please provide a copy of each item listed.
  - c. The number of repairs and/or replacements paid for by Volvo that resulted from the communication identified. List your response by repairing dealer.
5. Identify and describe all modifications or changes made by, or on behalf of Volvo, to the subject components in the subject vehicles. The following information must be included for each such modification or change:
  - a. the date or approximate date on which the modification or change was incorporated into production;
  - b. a description of the modification or change;
  - c. the vehicles affected by the change;
  - d. the reason for the modification or change;
  - e. the part number(s) for the part incorporating the change;
  - f. the date or approximate date the part incorporating the change was made available to retail parts departments as a service part;
  - g. disposition of unmodified parts and assemblies; and
  - h. a sample of the part incorporating the modification or change (where applicable).
6. Identify and describe all modifications or changes to the subject component and/or vehicles that have been or are being proposed, evaluated, or considered by Volvo to address the alleged defect. Do not repeat modifications or changes identified in response to Question #

- 5 above. The following information must be included for each such modification or change:
- a. the date or approximate date on which the modification or change was initially considered;
  - b. a description of the modification or change;
  - c. the vehicles that would be affected by the change; and
  - d. the reason the modification was (or was not) adopted.
7. Identify and provide copies of all documents reflecting any study, survey, and investigation pertaining to the alleged defect that is known to Volvo. Include all pertinent documents, regardless of whether they are in interim, draft, or final form.
  8. Furnish Volvo's assessment of the alleged defect in the subject vehicles, including:
    - a. all causal or contributory factors;
    - b. the failure mode;
    - c. root cause of the failures; and
    - d. potential for future occurrences of the alleged defect in the subject vehicles.
  9. Identify and describe what actions Volvo intends to take, or is taking, concerning the alleged defect.
  10. State the date that Volvo ceased collecting information for use in responding to this Information Request. If more than one date applies, please provide the date for each information type (e.g., vehicle population, owner complaints, warranty, etc.)

This letter is being sent to Volvo pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to make reports to NHTSA. Volvo's failure to respond promptly and fully to this letter could subject Volvo to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Other remedies and sanctions are available as well.

Volvo's response to this letter, in duplicate, must be submitted to this office by August 11, 1999. Please include in Volvo's response the identification codes referenced on page one of this letter. If Volvo finds that it is unable to provide all of the information requested within the time allotted, Volvo must request an extension from Thomas Cooper at (202) 366-5218 no later than five business days before the response due date. If Volvo is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Volvo then has available, even if Volvo have received an extension.

If Volvo considers any portion of its response to be confidential information, 49 CFR Part 512, "Confidential Business Information," requires that Volvo submit two copies of those document(s) containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted, to the Office



of Chief Counsel, National Highway Traffic Safety Administration, Room 5219 (NCC-30), 400 Seventh Street, SW, Washington, D.C. 20590. In addition, Volvo must provide supporting information for the request for confidential treatment in accordance with part 512.4(b) and (e) and include the name, address, and telephone number of a representative to receive a response from the Chief Counsel.

If you have any technical questions concerning this matter, please call Greg Magno of my staff at (202) 366-0139.

Sincerely,

Thomas Z. Cooper, Chief  
Vehicle Integrity Division  
Office of Defects Investigation

Enclosures: 837200 and NHTSA SCI report

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U.S. Department of Transportation National Highway Traffic Safety Administration	<b>Auto Safety Hotline</b> <b>Vehicle Owner's Questionnaire</b> NATIONWIDE 1-800-424-9393 DC METRO AREA (202) 366-0123 INTERNET: <a href="http://www.nhtsa.dot.gov">http://www.nhtsa.dot.gov</a>	<b>FOR AGENCY USE ONLY 250</b> Date Received 28-APR-1999	
	OWNER INFORMATION (Type or Print) <div style="text-align: right; margin-right: 50px;">518762</div> HOUSTON TX		Ord. or rt. dt. _____ od. rt. up. yr. _____ Reference No. 837200
		Work Num: _____	Home Num: _____

Do you authorize NHTSA to provide a copy of report to the manufacturer of your vehicle?  YES  NO  
 In the absence of an authorization, NHTSA WILL NOT provide your name and address to the vehicle manufacturer.  
 Signature of Owner \_\_\_\_\_ Date \_\_\_\_\_

VEHICLE INFORMATION						
Vehicle Ident. No. (VIN.) (Located at bottom of windshield on driver's side) <b>YV1LS5676W1546503</b>	Vehicle Make <b>VOLVO</b>	Vehicle Model <b>S70</b>	Vehicle Year <b>1998</b>	Current Odometer Reading		
Purchase Date <input type="checkbox"/> New <input checked="" type="checkbox"/> Used	Dealer's Name _____ City _____ State _____ Zip Code _____		Engine Size (CID/CC/L) _____ No. Cylinders _____	<input type="checkbox"/> Turbo <input type="checkbox"/> Diesel <input type="checkbox"/> Gas <input type="checkbox"/> Fuel Injection		
Transmission Type <input type="checkbox"/> Manual <input type="checkbox"/> Automatic	Antilock Brakes <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Restraint System <input type="checkbox"/> 3-Point Belt <input type="checkbox"/> Motorbelt <input type="checkbox"/> Driverside Airbag <input type="checkbox"/> 2-Point Belt <input type="checkbox"/> Passengerside Airbag	Cruise Control <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Drive Train <input type="checkbox"/> Front <input type="checkbox"/> Rear <input checked="" type="checkbox"/> 4-Wheel	Vehicle Type <input type="checkbox"/> Car <input type="checkbox"/> Sport Utility Truck <input type="checkbox"/> Van <input type="checkbox"/> Motorcycle <input type="checkbox"/> Minivan <input type="checkbox"/> Other	Body Style <input type="checkbox"/> 2-Door <input type="checkbox"/> 4-Door <input type="checkbox"/> Stationwagon <input type="checkbox"/> Pick Up Truck <input type="checkbox"/> Other

FAILED COMPONENT(S)/PART(S) INFORMATION			
Component 12112300	Part Name(s) INTERIOR SYSTEMS:PASSIVE RESTRAINT:AIR BAG:SIDE DOOR:P	Location <input type="checkbox"/> Left <input type="checkbox"/> Right <input type="checkbox"/> Front <input type="checkbox"/> Rear	Failed Part(s) <input type="checkbox"/> Original <input type="checkbox"/> Replacement
No of Failures	Date(s) of Failure(s) _____ Mileage at Failure(s) <u>8958</u> Vehicle Speed at Failure(s) _____	Failed Part(s) Available? <input type="checkbox"/> Yes <input type="checkbox"/> No	NHTSA Previously Contacted? <input type="checkbox"/> Yes <input type="checkbox"/> No

APPLICATION INCIDENT INFORMATION					
(Please describe in detail the incident(s), Failure(s), Crash(es), and Injury(ies) on the back of this form)					
Crash <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Fire <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number of Persons Injured	Number of Fatalities	Estimated Property Damage	Reported to Police <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

**NARRATIVE DESCRIPTION OF FAILURE(S), INCIDENT(S), INJURY(IES)**

**CONSUMER WAS SITTING IN THE VEHICLE, AND THE PASSAGER'S SIDE-AIR BAG DEPLOYED FOR NO REASON. \*AK**

*(side air bag only deployed)*

CONTINUE ON BACK IF NEEDED

The Privacy Act of 1974-Public Law 93-578 This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

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**TRANSPORTATION SCIENCES CENTER  
ACCIDENT RESEARCH GROUP**

Calspan SRL Corporation  
Buffalo, New York 14225

**CALSPAN REMOTE INADVERTENT SIDE AIR BAG DEPLOYMENT  
INVESTIGATION**

**CALSPAN CASE NO. CA97-27**

**SUBJECT VEHICLE - 1995 VOLVO 850**

**LOCATION - STATE OF MASSACHUSETTS**

**INCIDENT DATE - MAY, 1997**

Contract No. DTNH22-94-D-07058

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590

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The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

## TECHNICAL REPORT STANDARD TITLE PAGE

<p>1. <i>Report No.</i> CA 97-27</p>	<p>2. <i>Government Accession No.</i></p>	<p>3. <i>Recipient's Catalog No.</i></p>	
<p>4. <i>Title and Subtitle</i> Calspan Remote Inadvertent Side Air Bag Deployment Investigation Subject Vehicle - 1995 Volvo 850 Location - State of Massachusetts</p>		<p>5. <i>Report Date:</i> October, 1997</p>	
		<p>6. <i>Performing Organization Code</i></p>	
<p>7. <i>Author(s)</i> Accident Research Group</p>		<p>8. <i>Performing Organization Report No.</i></p>	
<p>9. <i>Performing Organization Name and Address</i> Transportation Sciences Center Accident Research Group Calspan SRL Corporation P.O. Box 400 Buffalo, New York 14225</p>		<p>10. <i>Work Unit No.</i> 1115 (7500-7509)</p>	
		<p>11. <i>Contract or Grant No.</i> DTNH22-94-D-07058</p>	
<p>12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration Washington, D.C. 20590</p>		<p>13. <i>Type of Report and Period Covered</i> Technical Report Incident Date: May, 1997</p>	
		<p>14. <i>Sponsoring Agency Code</i></p>	
<p>15. <i>Supplementary Notes</i></p> <p>Remote investigation of a 1995 Volvo 850's passenger Supplemental Impact Protection System (SIPS) air bag which deployment resulted from the compression of a hockey stick between the right front door and the passenger's right side air bag triggering mechanism.</p>			
<p>16. <i>Abstract</i></p> <p>The incident involved the inadvertent deployment of the right side air bag (Sipsbag) of a 1995 Volvo 850, 4-door sedan. The Volvo was occupied by a 15 year old male in the right front seated position at the time that the passenger side Sipsbag deployed. In addition, the Volvo was also occupied by an adult male seated in the driver's position and three teenaged males seated in the rear seat of the vehicle. The Volvo's ignition was turned to the on-position with the engine running and the transmission in park when a hockey stick was compressed between the right front door and the passenger's Sipsbag triggering mechanism. The right front occupant sustained a contusion (AIS-I) approximately 2.5cm (1.0 in) in diameter on his lateral right forearm. No other occupants of the Volvo were injured.</p>			
<p>17. <i>Key Words</i> Side Impact Protection System (SIPS), Sipsbag, Side air bag, Side air bag deployment, 1995 Volvo 850, Inadvertent deployment.</p>		<p>18. <i>Distribution Statement</i> General Public</p>	
<p>19. <i>Security Classif. (of this report)</i> Unclassified</p>	<p>20. <i>Security Classif. (of this page)</i> Unclassified</p>	<p>21. <i>No. of Pages</i> 3</p>	<p>22. <i>Price</i></p>

**CALSPAN REMOTE INADVERTENT AIR BAG DEPLOYMENT**

**CALSPAN CASE NO. CA97-27**

**VEHICLE: 1995 VOLVO 850**

**LOCATION: STATE OF MASSACHUSETTS**

**INCIDENT DATE: MAY, 1997**

**TECHNICAL SUMMARY**

This incident involved the inadvertent deployment of the passenger Side Impact Protection System air bag (Sipsbag) in a 1995 Volvo 850, 4-door sedan. The Volvo was occupied by a 15 year old male in the right front seated position at the time the right side Sipsbag deployed. The Volvo was also occupied by an adult male seated in the driver's position and three teenaged males seated in the rear seat of the vehicle. The Volvo's ignition was turned to the on-position with the engine running and the transmission in park when a hockey stick which was positioned along the right sill of the vehicle was compressed between the right side air bag triggering mechanism and the closing right front door, causing the passenger Sipsbag to deploy. The right front occupant sustained a contusion (AIS-1) approximately 2.5 cm (1.0 in) in diameter on his lateral right forearm resulting from contact with the deploying Sipsbag. No other occupants of the Volvo were injured.

Initial notification of this incident was received by Public Affairs at NHTSA from a consumer reporter for a newspaper local to the area in which the incident occurred. Calspan's Special Crash Investigation Team was subsequently alerted of the incident on August 11, 1997 and initiated a remote investigation.

The subject vehicle was a 1995 Volvo 850, 4-door sedan which was identified by vehicle identification number YV11S5508S1 (production number deleted). It was equipped with a Supplemental Restraint System (SRS) that consisted of driver and passenger frontal air bags, and a Side Impact Protection System (SIPS). The SIPS consisted of the reinforcement of many systems of the vehicle including the doors, B-pillar, the floor, the floor tunnel, the roof, and the seats in addition to the Sipsbag. The Volvo was also equipped with 3-point lap and shoulder belt systems for the front and rear outboard seated positions as well as the center rear seated position. Pyrotechnic pretensioners were available at the front positions.

On the date of the incident, the adult male driver of the Volvo drove to pickup the four teenage occupants from playing street hockey. Three of the males took positions in the rear seat of the Volvo while the remaining male was seated in the right front position of the vehicle. This occupant did not have adequate room to place his hockey stick in front of him and, therefore he positioned the stick between the right front sill area and the right front seat at the location of the Sipsbag's sensor unit. The right front door was still open at this time. This occupant then closed the door which compressed the hockey stick against the seat frame and the triggering mechanism subsequently initiated the Sipsbag's deployment sequence. The deployment of the passenger side Sipsbag caused the stitching of the leather seat back on the outboard and superior aspects to separate. A safety report from Volvo Car Corporation (Paper No. 94 S6 O 13) indicates that this is normal on the outboard side of the seat back. The cost incurred to replace the Sipsbag and repair the seat back was \$1300.00.

The right front seated occupant was a 15 year old male with a height of 178 cm (70 in) and weight of 64 kg (140 lbs). At the time of the incident, he was wearing blue jeans and a short sleeved cotton T-shirt which remained intact. This occupant sustained a contusion approximately 2.5 cm (1.0 in) in

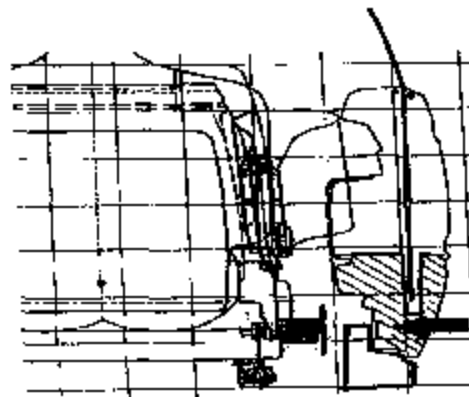
diameter on his lateral right forearm (AIS-1) from contact with the deploying Sipsbag.

The hockey stick consisted of a wooden handle and a plastic blade. It was placed with the plastic blade forward of the right front seat cushion with the handle extended along the right sill area and into the right rear area. The handle and blade were not fractured as a result of being compressed between the right front door and the triggering mechanism.

The Sipsbag's sensor was located on the outboard aspect of the lower seat frame and the module was contained in the outboard seat back. The ventilated Sipsbag was made of polyamide with an internal coating of silicone rubber. It was designed to deploy when an impact triggers a mechanical sensor and drives a firing pin into a percussion cap. Speed, force, and deformation equivalent to a side impact at a minimum of approximately 18 km/h (11 mph) is required to initiate the deployment of the side air bag system. The conditions required to trigger the Sipsbag are:

- Speed > 2 m/s
- Force > 500 N
- Stroke > 2 mm

### **Volvo's Sipsbag Seat Installation**



The left and right side air bags deploy independently of one another, therefore the driver's side Sipsbag did not deploy. The vehicle was also equipped with frontal air bags in the left and right seated positions. These air bags did not deploy in this non-crash event.

Right Front Passenger: 15 year old male  
Height: 178 cm (70 in)  
Weight: 64 kg (140 lbs.)  
Clothing: Jeans and a short sleeved white cotton t-shirt.  
No protective hockey equipment was used.  
Medical Treatment: None

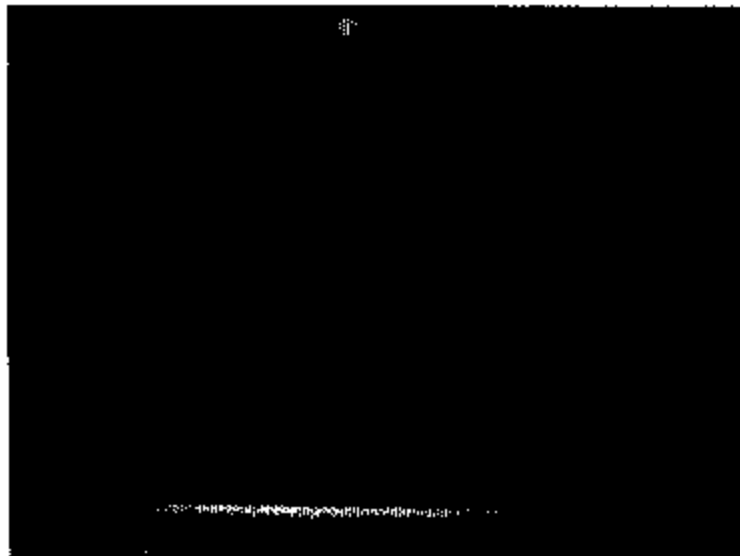
**RIGHT FRONT PASSENGER INJURIES**

<b>Injury</b>	<b>Injury Severity (AIS-90)</b>	<b>Injury Mechanism</b>
Lateral right arm contusion 2.5 cm (1.0 in) in diameter	Minor (790402.1,1)	Passenger right side air bag

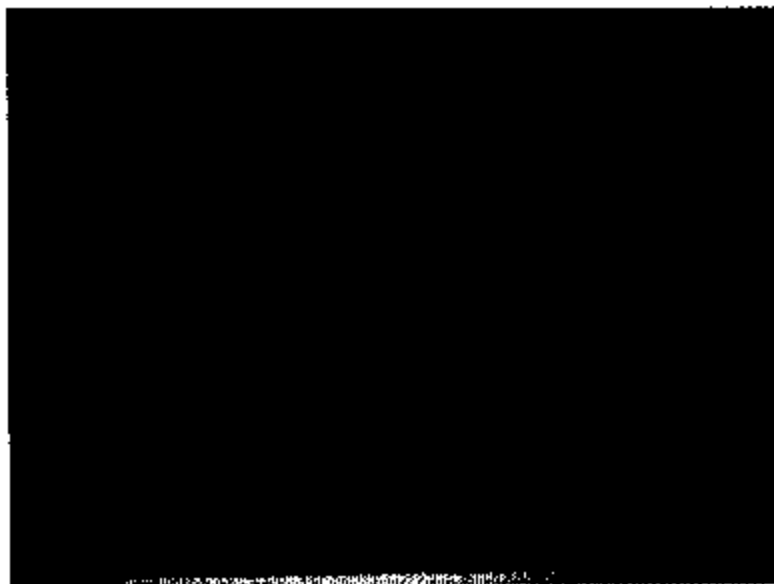
16



Appendix A  
Selected Images



1. Identification of the subject vehicle



2. View of the deployed passenger side Sipsbag and the separated stitching on the outboard and superior aspects of the right front seat back.



3. Posterior view of the separated stitching on the right front seat back.

*[Handwritten signature]*

JUL 19 1999

William Shapiro, Director  
Regulatory Compliance and  
Environmental Affairs  
Volvo Cars of North America, Inc.  
Volvo Drive  
Rockleigh, NJ 07647-0913

NSA-12gem  
PE99-040

Dear Mr. Shapiro:

We have reviewed Volvo Cars of North America, Inc.'s (Volvo's) letter dated July 1, 1999, requesting an extension for Volvo's reply to the Office of Defects Investigation's (ODI's) information request letter dated June 21, 1999. This letter is to inform you that ODI has granted the request for an extension of the due date. The reply due date, originally, August 11, 1999, is now extended to September 13, 1999. If Volvo is able to provide any material responsive to the subject information request letter before the revised due date, please provide that information as partial submission.

Sincerely,

*[Handwritten initials]*

Thomas Z. Cooper, Chief  
Vehicle Integrity Division  
Office of Defects Investigation

*[Handwritten number]*

# **VOLVO**

**Volvo Cars of North America, Inc.**

July 1, 1999

Mr. Tom Cooper, Chief  
Vehicle Integrity Division – Office of Defects Investigation  
NHTSA  
400 7<sup>th</sup> Street, S.W., NSA-12 Room NAS-5326  
Washington, DC 20590

RE: PE 99-040

Dear Mr. Cooper:

This will confirm my discussion of today with your Greg Magno.

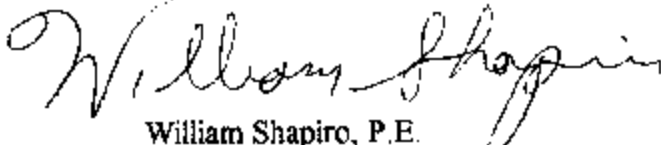
Volvo Car Corporation is closed for summer holiday from early July to early August.

We request an extension to September 13, 1999 to answer this P.E.

If additional information is required on this matter, please let me know.

Sincerely yours,

**VOLVO CARS OF NORTH AMERICA, INC.**  
Product Strategy and Business Development



William Shapiro, P.E.  
Director, Regulatory Compliance & Environmental Affairs



# VOLVO

Volvo Cars of North America, Inc.

OFFICE  
OF DEFECTS INVESTIGATION

1000 15th Street, N.W.

Washington, D.C. 20590

September 10, 1999

Mr. Thomas Z. Cooper, Chief  
Vehicle Integrity Division  
Office of Defects Investigation  
National Highway Traffic Safety Administration  
Room 5326 (NSA-12.2)  
400 Seventh Street, S.W.  
Washington, D.C. 20590

NSA-122gem  
PE 99-040

Dear Mr. Cooper:

This letter, and its enclosures, comprise the response of Volvo Cars of North America, Inc. (VCNA) to your June 21, 1999 request, received June 24, 1999, for information relating to Preliminary Evaluation PE99-040. An extension until September 13, 1999, for Volvo's reply, was granted by your office. Two copies are enclosed, as requested. This information is up to and including August 27, 1999.

Your request pertained to two (2) incidents. 1) NHTSA Case Number 837200 and 2) NHTSA SCI Report-Calspan Case No. CA97-27. The two (2) incidents involved alleged inadvertent deployments of Volvo SIPS air bags in a 1995 Volvo 854 and a 1998 S70. The subject vehicles as NHTSA stated in PE99-040 include all 1995-1998 800-Series, 900-Series, S/V 70 and S/V 90, manufactured for sale in the United States. Please note the 1995 Model Year 900 series did not have SIPS bags.

In order to respond to this request, Volvo undertook a thorough and diligent search. We spoke to a wide variety of affected persons in the United States and Sweden who, in the course of their daily business, are responsible for the various items related to the request. They, in good faith, conducted a thorough search for the information. Our response is based upon this diligent and thorough search.

During our research, Volvo reviewed all available documentation within its control, in order to answer NHTSA's questions pertaining to the subject vehicles and the alleged incidents. We have, in good faith, provided answers to these questions using the documentation that was available to us.

The numbers of subject vehicles retained in the United States are:

800-Series	900-Series	S/V 70	S/V 90	TOTALS
1995 59,431	NA	NA	NA	59,431
1996 58,030	16,182	NA	NA	74,212
1997 41,307	12,671	NA	6,515	60,493
1998 NA	NA	119,029	13,758	132,787
				----- 326,923

We have found one (1) additional case that may pertain to the alleged defect from the sources mentioned in NHTSA Question 2.

Enclosed as Appendix I is a summary of the one Volvo case plus the two cases forwarded by NHTSA.

In our search, we also found three (3) additional cases where Volvo might have repaired a Volvo vehicle containing the alleged defect. These three (3) cases are all from our warranty system. A summary of each case is provided in Appendix II. Please note, this information has not been substantiated by Volvo. It is only presented as written.

We have not issued any service information, in any form, about this alleged defect.

During the development of the SIPS bag system we performed a Failure Mode Effect Analysis (FMEA 98312/3202) which pertains in a general sense to this alleged defect. The following is a brief description of the tests:

Description of the performed test: Foreign objects were placed between door and seat, at the sensor location, while closing the door.

Method: Soft drink cans, a map book (approximately 15 mm. in width) and a telephone book (approximately 50 mm. in width) were placed between the door and the seat. The door was closed both: 1) hard; and, 2) very hard.

Number of tests: 18.

Results:

In the tests with cans, the sensor was NOT triggered.

In the tests with the map book, the sensor was NOT triggered.

In the tests with the telephone book the sensor was NOT triggered during "hard" closing. During "very hard" closing, the sensor was triggered only 17% of the time. Clearly the telephone book test was a very unrealistic test.

Because of the sensitive nature of air bag systems, Volvo elected to warn our customers, in many ways, about this potential situation. We placed warning labels in our owner's manuals and we placed a warning label on the instrument panel, on the driver's side, that can clearly be seen as the door is opened. In addition, we issued a warning about the subject to our dealer body. We clearly warned our owners about this situation. All of these warnings are contained in Appendix III.

The following is a summary of the changes that Volvo has made to the SIPS bag system of the subject vehicles:

MY 1995-1997 850 and MY 1998 S/V 70

MY 95 Introduction of SIPS bag.

MY 96 Changed sensor impact pin. Optimization for assuring assembly.

MY 98 Changed door trim for new styling, introduction of S/V 70

MY 98 Changed seat trim for new styling, introduction of S/V 70.

MY 1996-1997 960 and MY 1997-1998 S/V 90

MY 96 Introduction of SIPS bag in 960, renamed S/V 90 in MY 97.

Contained as Appendix IV is an analysis estimating the number of miles the subject vehicles have been driven. This amounts to approximately 10.531 billion vehicle-miles.

We have located two (2) cases where there are very minor (AIS-1) injuries. This amounts to less than one (0.611) case per 100,000 vehicles or 0.190 cases per 100 million vehicle-miles. In all of these cases the owners didn't follow Volvo's warnings which are provided in many prominent places.

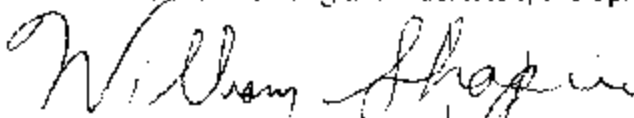
In total, there are six (6) cases of the alleged defect. This amounts to 1.835 cases per 100,000 vehicles or less than one (0.569) case per 100 million vehicle-miles.

These are extremely low ratios. Based on the above analysis we deeply believe that this does not present an unreasonable risk to motor vehicle safety and that this investigation should be closed.

Sincerely yours,

VOLVO CARS OF NORTH AMERICA, INC.

Product Planning and Business Development



William Shapiro, P.E.

Director, Regulatory Compliance and Environmental Affairs



**Volvo Response to PE99-040 (9/13/99)**

**APPENDIX I**

**Case 1**

FOWLER

MY95 855

YVILW5716S2125240

Mileage: 29,219

Date of manufacture: 1/23/95

Incident Date: 8/10/97

SIPS Bag Deployed: Driver's side

Injuries: Welts on arms

**Summary:**

Customer states that side impact bag went off while cleaning car.

The Volvo investigation indicates that the driver's side SIPS bag deployed. No body damage was evident, although evidence of prior repair to hood and fenders was noted. The SIPS detonator cap was physically damaged on the tip. Damage to the left, front door panel was noted at the rear of the panel, near the top.

The owner did not follow the Volvo SIPS bag warnings.

Case 2

BLOUNT (NHSTA CASE 1)

MY98 S70

YV1LS5676W1546503

Mileage: 8,958

Date of manufacture: 5/28/98

Incident Date: April 1999

SIPS Bag Deployed: Passenger's side

Injuries: None

Summary:

Customer reported passenger's side SIPS bag deployed when right front door was closed.

Volvo's investigation revealed an indentation on the right front door panel and an impact at the passenger power seat controls, right at the SIPS sensor. Something got caught, between the right front door panel and the (power) seat control panel, causing the compression/impact to the right SIPS bag trigger.

The owner did not follow the Volvo SIPS bag warnings.

**Volvo Response to PE99-040 (9/13/99)**

**APPENDIX I**

**Case 3**

CALSPAN Report/NHTSA CASE 2

MY95 854

YV1LS5508S1256696

Mileage: Unknown

Date of manufacture: 5/16/95

Incident Date: May 1997

SIPS Bag Deployed: Passenger's side

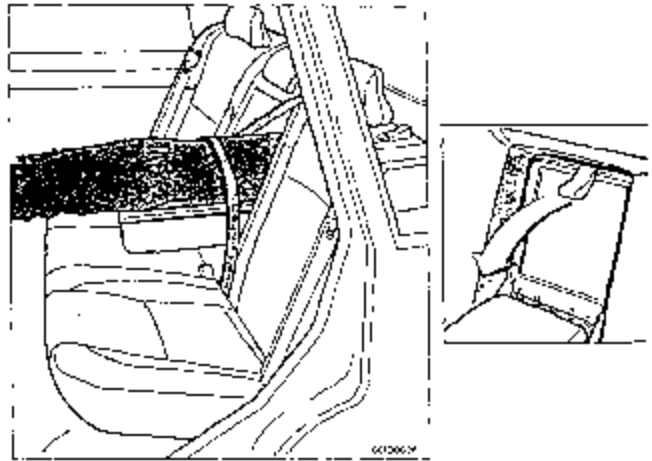
Injuries: Contusion (AIS-1)

**Summary:**

Car was not examined by Volvo. Summary information is available in CALSPAN Case Report CA97-27, October 1997.

The owner did not follow the Volvo SIPS bag warnings. Additionally, Volvo's "long load" opening for items like hockey sticks and skis, that passes between the center back seat and the trunk, was not utilized. This is clearly stated in the Volvo owner's manual.

## Long load storage (sedans)



### Long load storage (sedans)

There is a flap located in the panel behind the rear seat which makes it possible to carry long loads such as skis, etc. To open, pull the strap forward.

Protective covers (for skis) should be used to avoid soiling or tearing the upholstery. Please note that the flap in the rear seat is only intended for light loads such as skis, carpets, etc.

Max length: 6 1/2 ft (2 meters) Max weight: 55 lbs (25 kg)

**WARNING!** Always turn the engine off and apply the parking brake when loading/unloading the vehicle. Place the transmission in the P (PARK) position to help prevent inadvertent movement of the gear selector.

Volvo Response to PE99-040 (9/13/99)

APPENDIX II

**Warranty Case 1**

MY96 855

YV11.W5555T2253878

Mileage: unknown

Date of manufacture: 4/03/96

Incident Date: June 1996

SIPS Bag Deployed: Passenger's side

Injuries: None stated.

Repair order indicates:

The side air bag deployed with no impact.

The owner did not follow the Volvo SIPS bag warnings.

**Volvo Response to PE99-040 (9/13/99)**

**APPENDIX II**

**Warranty Case 2**

MY96 854

YV1LS5512T1282155

Mileage: Unknown

Date of manufacture: 9/07/95

Incident Date: March 1998

SIPS Bag Deployed: Passenger's side

Injuries: None stated.

Repair order indicates:

Customer states passenger, side impact air bag deployed when slamming door. Deployed by itself. Replaced side impact air bag on passenger side.

The owner did not follow the Volvo SIPS bag warnings.

**Volvo Response to PE 99-040 (9/13/99)**

**APPENDIX II**

**Warranty Case 3**

MY96 854

YV1LS555571335837

Mileage: Unknown

Date of manufacture: 3/28/96

Incident Date: October 1997

SIPS Bag Deployed: Passenger's side

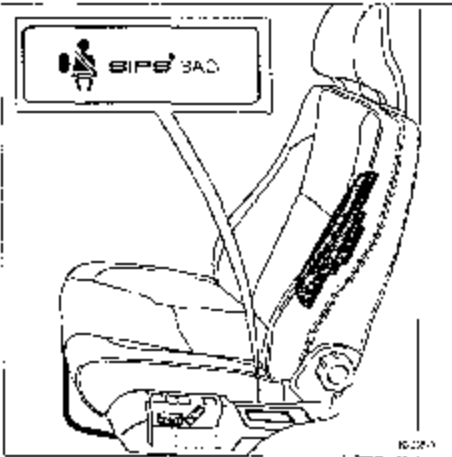
Injuries: None stated.

Repair order indicates:

Customer states that after shutting passenger front door, the side impact air bag deployed on its own. Investigation determined that something got in between the door and the switch for the air bag.

The owner did not follow the Volvo SIPS bag warnings.

## Volvo Side Impact Protection System (SIPS) airbag



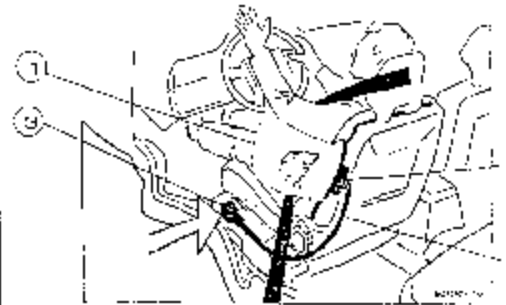
SIPS airbag decal \*

### SIPS airbag (front seats only)

As an enhancement to the structural Side Impact Protection System built into your car, the car is also equipped with Side Impact Protection System (SIPS) airbags. The SIPS airbag system consists of airbag modules built into the sides of both front seat backrests (1), cables (2) from these modules to the mechanical sensor units (3) and gas generators (4). The SIPS airbag system is designed to help increase occupant protection in the event of certain side impact collisions. The SIPS airbags are designed to deploy only during certain side-impact collisions, depending on the crash severity, angle, speed and point of

#### WARNING!

- The SIPS airbag system is a supplement to the Side Impact Protection System and the three-point seat belt system. It is not designed to deploy during collisions from the front or rear of the car or in rollover situations.
- Only Volvo approved seat covers may be used. The use of non-approved aftermarket seat covers may impede SIPS airbag deployment.
- No objects, accessory equipment or stickers may be placed on, attached to or installed near the SIPS airbag system or in the area affected by SIPS airbag deployment (see illustration to the right above).
- Never try to open or repair any components of the SIPS airbag system. This should only be done by an authorized Volvo service technician.
- For best protection from the SIPS airbag system, both front seat occupants should sit in an upright position with the seat belt properly fastened.



1 - Airbag, 2 - cable, 3 - sensor unit, 4 - gas generator

**WARNING!** Never drive with the airbags deployed. The fact that they hang out can impair the steering of your car. Other safety systems can also be damaged. The smoke and dust formed when the airbags are deployed can cause skin and eye irritation in the event of prolonged exposure.

impact. The airbags are not designed to deploy in all side impact situations.

**NOTE:** SIPS airbag deployment (one airbag) occurs only on the side of the vehicle affected by the impact.

\*A SIPS airbag warning decal is located at the end of the instrument panel on the driver's side of the car.



## SIPS-bag decals,

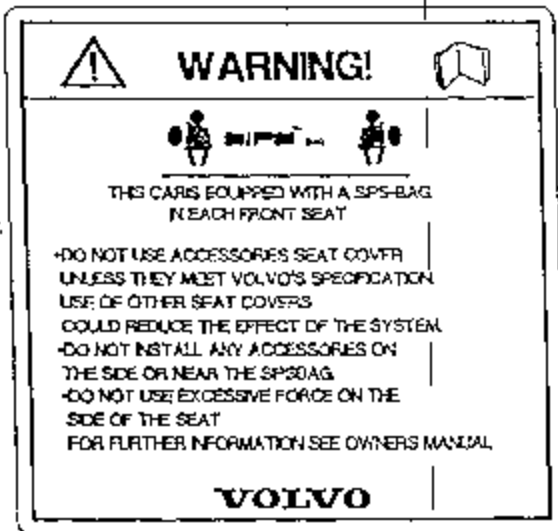
Warning and information decals inside car



8600533A

### On windshield

Decal on front windshield combined with SRS decal.  
Decal indicates whether car is equipped with SIPS bag.



8600532A

### Driver's side instrument panel

Decal on side of instrument panel on driver's side.

Use only Volvo-approved upholstery covers; other upholstery covers can impair system function. Do not mount any accessories near SIPS bag in seat back. Do not apply force to side of seat. For further information, see owner's manual.

## Volvo Cars of North America, Inc. Rockleigh, New Jersey

#####  
 DISTRIBUTE TO SERVICE / PARTS MANAGERS AND VOLVO TECHNICIANS  
 #####

TTTTTTT	EEEEEE	CCCCC	H	H	DDDD	CCCCC	SSSSSS
T	E	C	H	H	D	D	C
T	EEEE	C	HHHHHH	=====	D	D	C
T	E	C	H	H	D	D	C
T	EEEEEE	CCCCC	H	H	DDDD	CCCCC	SSSSSS

#####  
 VOLVO CARS OF NORTH AMERICA, ROCKLEIGH, NJ.      DATE: 11/04/94  
 #####

MODEL : 850 (Side Impact Air Bags)      NO: 88-03  
 SUBJECT: SEAT CAUTIONS  
 REFERENCE: SIPS-bag 850 1995- (TP 8802201)

**DESCRIPTION:**

The Side Impact Air Bag system is installed on 1995 model year 850 Turbos and is available as an option on non turbo models. Seats containing the side impact air bag system must be handled carefully observing all procedures, cautions and warnings in the SIPS-bag book TP 8802201.

We very strongly discourage unnecessary removal of seats containing side impact air bags, including swapping seat assemblies or any seat component, with other vehicles.

Seat covers are not approved for use on seats containing side impact air bags and no accessories may be installed in the area next to the seat. Also, when reupholstering a seat back only Volvo-original seat upholstery intended for seats with side impact air bags may be used.

Drive Safely  
 Volvo Cars of North America, Inc.  
 850 Quality Action Center

Please circulate, read and initial:

\_\_\_\_ Svc mgr    \_\_\_\_ Parts mgr    \_\_\_\_\_ TECHS

This DCS-gram will be sent to dealers today.

APPENDIX IV  
 NHTSA PE 99-040  
 NUMBER OF VEHICLES PER MODEL & MODEL YEAR

MODEL YEAR	800	900	S/V 70	S/V 90	TOTAL VEHICLES (MODEL YEAR)
1995	59,431	N/A	N/A	N/A	59,431
1996	58,030	16,182	N/A	N/A	74,212
1997	41,307	12,671	N/A	6,515	60,493
1998	N/A	N/A	119,029	13,758	132,787
<b>TOTAL VEHICLES (MODEL)</b>	<b>158,768</b>	<b>28,853</b>	<b>119,029</b>	<b>20,273</b>	

**GRAND TOTAL VEHICLES** 326,923

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**APPENDIX IV FOR PE99-040 (CONTINUED)**

MODEL YEAR	NUMBER OF MILES DRIVEN PER MODEL & MODEL YEAR			TOTAL MILES (MODEL YEAR)
	800	900	S/V 90	
1995	3209274000	N/A	N/A	3209274000
1996	2437260000	679644000	N/A	3116904000
1997	1239210000	380130000	N/A	1814790000
1998	N/A	N/A	247614000	2390166000
<b>TOTAL MILES (MODEL)</b>	6885744000	1059774000	2142522000	443094000
<b>GRAND TOTAL MILES</b>	10531134000			
<b>AVERAGE MILES DRIVEN FOR ANY VEHICLE PER MODEL YEAR</b>	=		12000	

Note: Mileage is obtained as follows: model/model year number of vehicles x 12,000 miles/year average x number of years through mid-1999.  
 Also, mid-1999 represents 0.5 years.  
 E.g., for 1995 800, mileage = 59,431 vehicles x 12,000 miles/year x 4.5 years.

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U.S. Department  
of Transportation  
National Highway  
Traffic Safety  
Administration

# ODI RESUME

INVESTIGATION: PE99-040  
SUBJECT: Inadvertent side air bag deployment  
PROMPTED BY: IE99-043 / Ong  
PRINCIPAL ENGINEER: Gregory Magno

DATE OPENED: 7-Jun-99  
DATE CLOSED: 27-Oct-99

MANUFACTURER: Volvo Cars of North America, Inc  
MODEL(S): 850/900/70/90 Series  
MODEL YEAR(S): 1995-1998  
VEHICLE POPULATION: 326,923

PROBLEM DESCRIPTION: Side air bag may deploy without a side impact crash.

## FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	2	1	3
CRASHES:	0	0	0
INJ CRASHES:	0	0	0
# INJURIES:	2	0	0
FAT CRASHES:	0	0	0
# FATALS:	0	0	0
OTHER:	0	3	3

DESCRIPTION OF OTHER: Warranty claims in which the side air bag deployed without a side impact crash.

ACTION: The Preliminary Evaluation has been closed.

ENGINEER: [Signature] DIV CHIEF

[Signature] OFC DIR:

10/26/99  
DATE

10/26/99  
DATE

10/27/99  
DATE

### Background

ODI initiated the Preliminary Evaluation on 7-Jun-99 based on two complaints of inadvertent deployment of the passenger seat-mounted side impact air bag in Volvo vehicles, one in a Model Year (MY) 1995 S50, the other in a MY 1998 S70.

### Subject System

The Side Impact Protection System air bag (SIPSbag) is mounted inside the outboard portions of the subject vehicle front seat backs. In a side impact collision, the SIPSbag is triggered by impact of the vehicle's door as it deflects inwards against the lower seat frame-mounted sensor head. The sensor head, containing a percussion ignitor transmits a flame front through an explosive-lined plastic tube to ignite the gas generator, deploying the SIPSbag.

Continued on Page 2

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10-27-99

**Reported Incidents**

A NHTSA Special Crash Investigation (SCI) of the MY 1995 850 incident (May 1997) revealed that the passenger side SIPSbag was triggered by compression of a hockey stick between the passenger door and passenger seat-mounted sensor head. SIPSbag deployment occurred as the seat occupant pulled the door closed. The occupant, a 15 year old male suffered a 1 inch diameter contusion on his lateral right forearm.

ODI recently (April 1999) received a report detailing an incident in which the passenger SIPSbag in a MY 1998 S70 deployed while its elderly female occupant was closing the door. She was uninjured by the deployment.

An additional report was received by Volvo in August of 1997. In this case, the driver side SIPSbag deployed while the owner was cleaning his vehicle. He received welts on his arms.

**Warranty Claims**

Volvo received three warranty claims (unrelated to the three above complaints) for replacement of SIPSbags that deployed without a side impact vehicle collision. No injuries were reported in any of these cases.

**Volvo Assessment**

Volvo has sought to warn vehicle users about the sensitive nature of air bag systems via warning labels and owners manual instructions

Complaint and injury rates are low:

6 deployments	1.8 / 100k vehicles	0.6 / 100M vehicle miles
2 injuries	0.6 / 100k vehicles	0.2 / 100M vehicle miles

**ODI Analysis/Conclusion**

The alleged defect occurs at a very low rate of 0.57 incidents per 100,000 vehicle-years. Additionally, the incidents are spread out over time, with only one occurring in the last year. Further use of agency resources does not appear to be warranted. The closing of this investigation does not constitute a finding by NHTSA that no safety-related defect exists. The agency will continue to monitor the performance of the subject vehicles in the field and reserves the right to take further action if warranted by the circumstances.

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