Safety Research Report Index - Airbag Defects and Safety

A. Background

- 1. "Study Minimizes Danger of Faulty Car Air Bags," From the State Capitals, 8/25/75
- 2. "GM Planning to Offer Airbags for Safety in 1982 Large Cars," Washington Post, 12/8/79.
- 3. "TRW Says Air-Bag Supply OK Despite Factory Explosions," 8/7/89, "Quebec Fire Cuts Off Supply of Powder to Inflate Air Bags," 10/16/89; "Second Plant Fire Perils Airbag Supply," Automotive News, 11/13/89
- 4. "Chrysler Investigates Air-Bag Face Scuff & Hand Burns," Automotive News, 11/20/89
- 5. "Chrysler Studies Reports of Burns Caused by Air Bags," 11/21/89, "Caution: Air Bags May Save Your Life or Burn Fingers," Wall Street Journal, 1/23/90
- 6. "Airbag Rupture Probed In Crash," Newsday, 2/18/90, "Car Air Bag Culprit in Chaos," Associated Press, 2/19/90
- 7. "Training Bulletin," Hartford Fire Department, 4/27/90
- 8. "Air Bags Pose Health Hazard for Service Personnel," Automotive News, 7/2/90
- 9. "Device in Air Bags Prompts Recalls," New York Times, 10/30/90, "First Major Air-Bag Recall Widening," New York Times, 11/3/90
- "How Safe Is Safe? If You Have Airbags You Don't Have To Worry --Too Much," San Jose Mercury News, 12/14/90
- 11. "Air Bags Spawn Few Lawsuits," Automotive News, 1/6/92
- 12. "Responding to Five Driver Fatalities in Cars with Airbags," IIHS Status Report, 3/14/92
- 13. "Demand Propels Argon Airbag Development," Automotive News, 3/30/92
- 14. "Big 3 Lobbying Unit Seeks Air-Bag Caveat," Wall Street Journal, 4/15/92
- 15. "Airbags Backfire on Some" et al, Series in Ft. Lauderdale Sun Sentinel, Mar.-July, 1993
- 16. "Airbags Snaps Woman's Neck in Crash," Rocky Mountain News, 8/8/93
- 17. "Airbags in Perspective," Status Report, 10/93
- 18. "Imperfect Protector: How Airbags Work," Philadelphia Inquirer, 3/7/96
- 19. "Deadly Airbags: How a Government Prescription for Safety Became a Threat to Children," USA Today, 7/8/96
- 20. "Auto Makers Fight, With Much Success, Suits Over Air Bags," Wall Street Journal, 8/14/96
- 21. "Safety Board Staff Backs Air Bag Changes," Washington Post, 9/17/96
- 22. "Safety Device With A Fatal Flaw," Washington Post, 10/27/96
- 23. "Dangers of Airbags Seen Decades Ago," Seattle Post-Intelligencer, 11/16/96
- 24. "U.S. Doubts On Air Bags Date to '69," Washington Post, 11/21/96
- 25. "U.S. To Ease Rules To Make Air Bags Less Dangerous," New York Times, 11/22/96
- 26. "The Auto Industry, The Air Bag...," Washington Post, 12/1/96
- 27. "Makers Find Holes in NHTSA Bag Rules," Automotive News, 1/6/97
- 28. "Shaky Statistics Are Driving the Air-Bag Debate," Wall Street Journal, 1/22/97
- 29. "From Life Saver To Fatal Threat" & "Small Victims of a Flawed Safety Device," 6/1/97, 6/2/97
- 30. "Not All Air Bags Are Alike," Washington Times, 7/4/97
- 31. "Changes in Air Bag Testing Become a Strapping Debate," Washington Post, 10/24/97
- 32. "A Life-Or-Death choice?," Newsweek, 10/20/97
- 35. "Consumer Groups Say Some Air Bags are Safer," The Detroit News, 7/4/97
- 36. "Airbag Rule Coming Very Soon ," "Saturns Change Little for 98," "GM Recalls 16,000 Malibus," Automotive News, 8/11/97
- 37. "The Safest Air Bags of All," Washington Post, 8/12/97
- 38. "Belated Crusade Against Air Bags," Washington Post, 8/23/97
- 39. "Some Air Bags Better Than Others," Washington Post, 9/18/97
- 40. "When Less Is More: New Air Bags May be Safer for Children," Weekly Reader, 9/19/97
- 41. "Arizona Supreme Court Rejects Preemption of No-Airbag Claims by Auto Safety Act," Public Justice, 5/97
- 42. "NTMVSA does not Preempt claims for Failure to Equip Car with Air Bags," Vol.40 Law Reporter, P.265 Reporter, 9/97
- 43. "Breed Technology Seeks Smart Interior Partner," Automotive News, 9/22/97
- 44. "Autoliv Shows Off Smart Airbag System," Automotive News, 9/23/97
- 45. "TRW Purchase Adds Airbag Versatility," "Depowered Bags Prompt NHTSA to Retest Models," Automotive News, 9/29/97
- 46. "Allied Signal Shrinks Role as Auto Supplier," "NHTSA Unable to Link Airbags to Clothes Fires," Automotive

News, 10/6/97

- 47. "Mr. President: Air Bags Save Lives. But Not if They re Turned Off," USA Today, 10/8/97
- 48. "NHTSA Approves Rule Allowing Air Bag Cutoffs," Washington Post, 10/9/97
- 49. "Siemens, Breed Join Forces in Airbag Strategy," Automotive News, 10/20/97
- 50. "2 Problems Trigger Audi Airbag Recall," Automotive News, 10/27/97
- 51. "The Cost-effectiveness of Air Bags by Seating Position "Jama, 11/5/97
- 52. "Ohio Law Supersedes Federal Law in Airbag Case, Says Court," Automotive News, 11/10/97
- 53. "U.S. to Allow Air Bag Cutoff Switches," Washington Post, 11/18/97
- 54. "On-Off Switches for Car Airbags Will be Allowed," New York Times, 11/18/97
- 55. "Rule is Criticized From Both Sides," USA Today, 11/19/97
- 56. "Who s in the Driver s Seat on Air Bag Switches?" Washington Post, 11/21/97
- 57. "Air Bags No Buffer for The Careless," Washington Post, 11/24/97
- 58. "The Next Generation of Air Bags," Charlottesville Business Journal, 11/97
- 59. "U.S. Agency Says Relatively Few People Apply for Auto Air Bag On-Off Switches," The Wall Street Journal, 12/19/97
- 60. "Smart System Proposal Delayed Six Months; NHTSA Begins Testing of New System Types," Product Safety & Liability Reporter, 12/19/97
- 61. "Few Seek to Turn Off Airbags," Automotive News, 1/19/98
- 62. "Move to Switch Off Airbags Concerns Safety Experts," 1/21/98
- 63. "Suit Seeks Repayment for Airbag Switches," Automotive News, 1/26/98

B. Attorne ys/Law suits

C. Experts

D. NHTSA Press Releases

- 1. "Automatic Crash Protection: Your Choice in 1990," 11/89
- 2. "NHT SA Provides Information to Rescue Crews for Airbag Crashes," 8/9/90; DO T Pamphlet, "Emergency Rescue Guidelines for Air Bag-Equipped Cars," 1990.
- 3. "NHT SA Warns Parents About Child Safety Seat Use In Cars With Air Bags," 12/10/91.
- 4. "Air Bags, Automatic Belts Saving Lives, DOT Reports," 6/25/92.
- 5. "Secretary Pena Praises New Rule Requiring Air Bags in All Cars By MY 1988," 9/2/93.
- 6. "NHTSA Requires Labels Warning Against Rear-Facing Child Seats In Air Bag-Equipped Positions," 2/18/94.
- "NHTSA Warns Drivers With Physical Disabilities Against Use of Special Steering Control Devices On Air Bag-Equipped Vehicles," 9/15/94.
- 8. "NHTSA Permits Air Bag Switch To Prevent Injury To Infants In Rear-Facing Safety Seats," 5/18/95.
- 9. "NHTSA & Ford Motor Co. Demonstrate New Air Bag Cutoff Switch," 8/23/95.
- 10. "Safety Agency Issues Warning on Air Bag Danger to Children," 10/27/95.
- 11. "NHTSA Takes Action Toward Improving Air Bag Safety," 11/7/95.
- 12. "NHTSA Signs Air Bag Joint Research Agreement With Transport Canada," 1/7/96.
- 13. "Secretary Pena Announces Government/Industry Coalition For Air Bag Safety," 5/21/96.
- 14. "New NHTSA Report: Air Bags Reduce Driver Fatalities by 11 Percent," 10/3/96.
- 15. "NHTSA Announces Comprehensive Plan to Improve Air Bag Technology & Reduce Air Bag Dangers," 11/22/96.
- 16. "NHTSA Issues Final Rule; Propose Two Changes to Reduce Air Bag Dangers," 12/30/96.
- 17. "NHTSA Permits Manufacturers To Use Lower Powered Air Bags," 3/14/97.
- 18. "DOT Announces New Policy For Air Bag On-Off Switches," 11/18/97.

E. NHTSA Rulemaking

- 1. DOT Grant of Exemption from Hazardous Materials Regulations to Morton Thiokol, et al., 6th Revision, 7/6/88; 14th Revision, 3/6/92
- 2. Chrysler Petition to Relax FMVSS 201 to allow vertically deploying passenger airbags, 8/17/88; NHTSA memo on meeting with Chrysler regarding petition, 12/20/88
- 3. Request for Comments (Vertical Airbags) 54 FR 32830 (Docket 89-16 No. 01), 8/10/89

- a. Chrysler, 9/21/89
- b. Volkswagen, 9/22/89
- c. GM & Ford, 9/25/89
- d. Porsche & Toyota, 9/25/89
- e. Volvo, 9/14/89

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- f. Suzuki, 10/13/89
- g. Mitsubishi, 9/27/89
- NHTSA-Industry Occupant Protection Meeting, 10/17/89
 - a. R. Brantman, Breed Automotive Corp, "Breed All-Mechanical Airbag Module Status Update"
 - b. W.R. Edwards, Chrysler, "Driver Airbag Field Experience"; Transcript of Comments
 - c. R. Rosenfeldt, Ford, "Ford Airbag Supplemental Restraint System Program"
 - d. J.A. Obermeyer, GM
 - e. R.M. Schreck, GM
 - f. W. Boehly, NHTSA, "Air Bag Investigations & Results of Selected Crashes"
 - g. W. Boehly, NHTSA, "Planned Analyses of Airbag Performance in Crashes"
 - h. J. Hackney, NHTSA, "Review of Present Air Bag Technology & Crash Test Performance"
 - I. S. Partyka, NHTSA, "Analytical Use of NHTSA's Air Bag File"
 - j. S. Yukevich, Volvo
- 5. Request for Comments (Evaluation Plan for Passenger Car Front Seat Occupant Protection) 55 FR 1586, 1/17/90
 - a. CAS, 5/16/90
 - b. Ford, 5/16/90
 - c. GM, 5/16/90
 - d. Mercedes-Benz, 5/16/90
 - NPRM (Vertical Airbags) 55 FR 29238, 7/18/90 (Docket 90-14 No. 01)
 - a. Chrysler, 8/23/90
 - b. GM & Ford, 9/4/90
 - c. Mercedes, 8/28/90; Volvo, 9/5/90
 - d. Nissan, 9/30/90
- 7. Final Rule (Amend FMVSS 201) 56 FR 26036 (Docket 90-14 No. 2), 6/6/91
 - a. NHTSA, Final Regulatory Evaluation: An Amendment to the Requirements of FMVSS 201 for Air Bag Vehicles, 4/91
- 8. Trip Report, Air Bag Technology Review Group (NHTSA Visit to Big Three re: Six Airbag Deaths), 10/21/91
- 9. Final Rule (Regulations for Transportation of Airbag Inflators & Modules As Hazardous Materials) RSPA, 57 FR 1874, 1/16/92
- 10. Shelness Petition to NHTSA to label passenger side airbags on rear-facing child seats," 2/26/92
- 11. MVM A Petition to Require Airbag Label, 2/27/92
- 12. Interim report, "Evaluation of the Effectiveness of Occupant Protection," 6/25/92
- 13. NPRM (Mandatory Airbags), 57 FR 59043 (Docket 74-14 No. 79), 12/14/92
 - a. "Preliminary Regulatory Evaluation," 12/9/92
 - b. Toyota, 2/5/93
 - c. Advocates for Highway and Auto Safety, 2/11/93
 - d. Automotive Occupant Restraints Council, 2/11/93
 - e. Volkswagen, 2/11/93
 - f. GM, 2/12/93
 - g. IIHS, 2/12/93
 - h. Chrysler, 2/11/93
 - I. Ford, 2/12/93
 - j. Honda, 2/12/93
 - k. AAMA, 2/12/93
 - 1. BMW, 2/17/93
- 14. Final Rule (Mandatory Airbag Warning & Labels on Use) 58 FR 46551 (Docket 74-14 No. 82), 9/2/93
 - a. NHTSA-EPA correspondence on Sodium Azide, 7/19/93
 - b. "Final Regulatory Evaluation," 8/30/93
 - c. GM Petition for reconsideration, 10/4/93
 - d. Ford Petition for reconsideration, 10/4/93

- e. Volkswagen Petition for Interpretation or Rulemaking, 10/21/93
- NPRM (Manual Cutoff Switch) 59 FR 51158 (Docket 74-14 No. 92), 10/7/94
 - a. "Preliminary Regulatory Evaluation," 9/21/94
 - b. American Academy of Pediatrics, 11/30/94
 - c. IIHS, 12/6/94

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16.

17.

- d. AAMA, 12/6/94, NHTSA memo re. AAMA comment, 12/21/94
- e. Advocates for Highway and Auto Safety, 12/6/94
- f. Ford, 12/6/94
- g. Mazda, 12/6/94
- h. NADA, 12/5/94
- I. Automotive Occupant Restraints Council, 12/6/94
- j. Volvo, 12/8/94
- k. GenCorp AeroJet, 12/1/94
- Final Rule (Manual Cutoff) 60 FR 27233 (Docket 74-14 No. 94), 5/23/95
- a. "Final Regulatory Evaluation," 4/17/95.
 - b. NHTSA, "Evaluation of Rear-Facing Infant Restraint Fit in Passenger Cars & Light Trucks," 5/18/95.
- Request for Comments (Airbag Injuries) 60 FR 56554 (Docket 74-14 No. 97), 11/9/95
- a. NHTSA, Letters to Automakers re: Need to Reduce Adverse Side Effects of Airbags, 12/21/95
- b. Toyota, 12/21/95
- c. GM, 12/21/95, 2/14/96, 5/14/96
- d. Nissan and Mazda, 12/22/95
- e. IIHS, 12/26/95
- f. Chrysler, 12/22/95
- g. ComCorp Technologies, 12/21/95
- h. University of Michigan Transportation Research Institute, 12/22/95
- I. Ford, 12/22/95
- j. Advocates for Highway and Auto Safety, 12/26/95
- k. Takata, 12/26/95
- 1. Porsche and BMW (Appendices 2-4 omitted), 12/22/95
- m. Volkswagen, 12/21/95
- n. NADA, 12/22/95
- o. AIAM/AAMA, 12/22/95
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- q. Mitsubishi, 1/2/96
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- s. National Transportation Safety Board, 1/4/96
- t. Morton, 1/15/96
- u. Echlin, 1/25/96
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- w. Saab, 3/1/96
- x. M, Wesiling (re. product liability waiver from TRW), 3/15/96
- y. Talley Industries, 3/19/96
- z. NHTSA, List of Meetings with Industry & Interested Parties, 5/14/96
- aa. NHTSA, Out Of Position Airbag Test Program Results, 7/22/96
- bb. CAS, 8/2/96
- cc. NHTSA, HYGE Sled Test Information, 9/20/96
- dd. NHTSA, Summery of Depowered Airbag Tests, 10/8/96
- ee. NHTSA, Summery of Less Aggressive Airbag Tests, 10/21/96
- ff. NHTSA, TRW Letter on "tag" child seats, 11/6/96
- gg. NHTSA, List of Airbag crash tests, 11/20/96
- hh. NHTSA, Crash Test Results With Depowered Inflators, 12/4/96
- 18. NPRM (Adverse Airbag Effects) 61 FR 40784 (Docket 74-14 No. 100), 8/6/96
 - a. Preliminary Regulatory Evaluation, 7/31/96
 - b. American Society of Safety Engineers, 8/26/96
 - c. Transport Canada, 8/30/96

- d. Parent's Coalition For Air Bag Warnings (appendices omitted), 9/16/96
- e. Porsche, 9/18/96
- f. TRW, 9/17/96
- g. Fisher-Price, 9/18/96
- h. Airbelt Systems, 9/20/96
- I. Simula, 9/19/96
- j. IIHS, 9/20/96
- k. BMW and Volvo, 9/19/96
- l. Isuzu, 9/19/96
- m. Siemens, 9/20/96
- n. GM, 9/20/96
- o. Advocates for Highway and Auto Safety, 9/20/96
- p. Mercedes-Benz and Land Rover, 9/20/96
- q. Autoliv, 9/19/96
- r. Nissan and Toyota, 9/20/96
- s. AIAM, 9/20/96
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- bb. Robert Bosch Corporation, 9/20/96
- cc. Takata, 9/30/96
- ee. Public Citizen, 9/20/96
- ff. Morton, 9/19/96
- gg. Volkswagen, 9/20/96
- hh. Honda, 10/4/96
- 19. PRM 208-110 (AAMA Depowering & Out of Position Occupant Testing Petition), 8/23/96
- 20. FMVSS 208 Compliance Test Results on Airbag Equipped Vehicles as of 10/24/96
- 21. Final Rule (Warning Labels) 61 FR 60206, 11/27/96
- 22. Final Rule (Cutoff Extension) 62 FR 798, 1/6/97
- 23. NPRM (Deactivation) 62 FR 831 (Docket 74-14 No. 107), 1/6/97
- 24. NPRM (Depowering) 62 FR 807 (Docket 74-14 No. 108), 1/6/97
 - a. IIHS, 1/15/97, 2/5/97
 - b. AAMA, 1/30/97
 - c. Volvo, 2/4/97
 - d. Ford, 2/5/97
 - e. AIAM, 2/5/97
 - f. CAS, 2/5/97

26.

- 25. Request For Comments (Smart Airbags) 62 FR 2996, 1/21/97
 - a. Transcript of Smart Air Bag Public Meeting, 2/11-12/97
 - Request for Comments (Kempthorne Petition) 62 FR 8917 (Docket 74-014 No. 113), 2/27/97
 - a. NHTSA memorandum of Law, 2/27/97
 - d. Automotive Occupant Restraints Council, 3/26/97
 - c. Donald Friedman, 3/27/97
 - d. American Academy of Pediatrics, 3/31/97
 - e. Isuzu, 3/31/97 & Subaru, 4/2/97
 - f. Parent s Coalition, 4/3/97
 - g. NTSB, 4/23/97
 - h. American Automobile Manufacturers Association, 5/5/97
 - I. International Organization of Motor Vehicle Manufacturers, 5/23/97
 - j. Dep. of Health & Human Services, 5/29/97
 - k. BMW, 5/30/97

- 1. Advocates for Highway & Auto Safety, 6/2/97
- m. AIAM, 6/2/97
- n. Mitsubishi & Toyota, 6/2/97
- o. Public Citizen, 6/2/97
- p. IIHS, 6/4/97
- 27. Final Rule (Depowering) 62 FR 12960, 3/19/97
 - a. Final Regulatory Evaluation, "Actions to Reduce Adverse Effects of Air Bags," 2/97
- 28. Interim Final Rule & Request For Comments (Exemptions from FMVSS 203 & 209 for Depowered Airbag Vehicles) 62 FR 26425 (Docket 74-14 No. 117), 5/14/97
- 29. Advanced Airbag Technology Working Group
 - a. List of Industry Members & NHTSA memo describing Working Group
 - b. Meeting Agenda & Materials, 4/24/97
 - c. Meeting Agenda & Materials (materials include JPL report & Transport Canada report), 5/23/97
- 30. AAMA Petition to eliminate sunset provision to depowering, 5/2/97
- 31. NHTSA Notice of Proposed Rulemaking (Advanced Airbag NPRM) and comments/submission Docket No. 4405, 09/18/1998
- 32. Final Rule (Cutoff switches), 62 FR 62406, 11/21/1997

F. National Transportation Safety Board (NTSB)

- 1. Performance & Use of Child Restraint Systems, Seatbelts, & Airbags For Children In Passenger Vehicles (Excerpts), Safety Study NTSB/SS-96/01 9/96
- 2. Safety Recommendation, 9/20/96
- 3. NTSB, Transcript of Air Bag & Child Passenger Safety Public Forum (witnesses include: NHTSA -- Ricardo Martinez, Philip Recht, Donald Bischoff, L. Robert Shelton, James Hedlund, Thomas Hollowell; Ford -- Helen Petrauskas, Louis Camp; Chrysler -- Guy Nusholtz; Volkswagen -- Die tmar Haenchen; Toyota -- Christopher Tinto; Mercedes-Benz -- Ingo Kallina; IIHS -- Brian O'Neill, Adrian Lund; Harvard -- John Graham; Public Citizen -- Joan Claybrook; U. Of Mich. -- Donald Huelke; GM --Harold Mertz, Robert Lange, Mitchel Sherba; U.S. Army Research Lab. -- G. Richard Price; U. of Miami -- Jeffrey Augenstein; U. of Tenn. -- Tyler Kress; Transport Canada -- Dainius Dalmotas; AAMA -- Vann Wilber; NADA -- Douglas Greenhaus; AIAM -- George Parker; Morton -- David Dahle; Automotive Technologies David Breed; State Farm -- John Werner; Autoliv -- Patrick Jarboe; TRW -- Thomas Vos), 3/17/97
- 4. NTSB, Summary of Recommendations on Airbag & Occupant Restraint Use, 6/10/97

G. Center for Auto Safety

- Letters to NHTSA regarding Chrysler airbag low trigger speed, friction, & hot gas burns, 8/4/89, 9/13/89, 10/11/89 & 11/23/89
- 2. Letter to NHTSA regarding Mercedes airbag failures, 9/7/90
- 3. Letter to NHTSA regarding Ford Crown Victoria/Grand Marquis airbag failures, 1/31/91
- 4. Petition for Rulemaking on Dual-Inflation Airbags & Threshold Trigger Speed, 11/20/96
- 5. "Airbag Study Shows Huge Variation in Safety Records" 7/3/97

H. Manufacturer Documents

- 1. Chrysler letter to Secretary of Transportation on Problems With Air Bags, 5/20/71
- 2. Ford, "Up-to-date Report on Air Bags" (advertisement), 8/71
- 3. Chrysler, "Safety, Packaging, Storage & Security of Driver Airbags," 10/1/87
- 4. GM, "Supplementing Safety Belts with Air Bags," circa 1988
- 5. Chrysler, "Servicing the Airbag System, Airbag Module Disposal Procedures," circa 1989
- 6. Morton International, "Material Data Safety Sheet," 4/16/90
- 7. GM Release, "New Emergency Rescue Training Programs," 6/12/90; Pamphlet, "Air Bags in GM Cars," 6/90
- 8. Ford Technical Service Bulletin 90-12-3, "Restraint System Supplemental Air Bag Sensor Attachment Fasteners - Repair Procedure"
- 9. TRW, "Fact/Fallacy" Fact Sheet on Airbags, 3/91
- 10. Honda to NHTSA in Nissan investigation re inadvertent deployment, 11/26/93, 12/22/93
- 11. Mazda to NHTSA in Nissan investigation re inadvertent deployment, 12/1/93
- 12. Chrysler to NHTSA in Nissan investigation re inadvertent deployment, 12/2&16/93

- 13. Toyota to NHTSA in Nissan investigation re inadvertent deployment, 12/9/93
- 14. Exemplary Manufacturer Letters to Owners Warning Of Airbag Dangers, 1996

I. Technical Reports

1. All-Mechanical Airbags

b.

- a. A. Breed, Breed Corp., "Breed All-Mechanical Airbag Module," 10th ESV Conf., 7/85.
 - R. Castelli & D. Breed, "Inertia Flow Crash Sensor & its Application to Air Bag Deployment," 12th ESV Conf., 5/89.
- c. JM Caster, NHTSA, "Breed All-Mechanical Driver Air Bag Evaluation," 12th ESV Conf., 5/89.
- 2. Computer Simulation
 - a. S. Enouen, et al., NHTSA, "Comparison of Models Simulating Occupant Response with Airbags," 2/84.
 - b. R. Brantman & D. Breed, Breed Corp., "Use of Computer Simulation in Evaluating Airbag System Performance," 5/85.
 - c. H.R. Dirkson, et al., Allied/Signal, "Airbag Restraint System Design by Crash Simulation Modeling & Design of Experiments," 1990.
 - d. J. Hou, J. Tomas, Royal Melbourne Institute of Technology, & L. Sparke, GM, Optimization of Driver-Side Airbag & Restraint System by Occupant Dynamics Simulation, 1995.
 - e. T. Lin, C.Wawa & T. Khalil, GM, Evaluation of the Hybrid III Dummy Interactions With Air Bags In Frontal Crash by Finite Element Simulation, 1995.
 - f. Ford, Math Modeling of HIII 50th %ile Driver Responses to Various Speed/Inflator/Restraint Combinations, 4/96 (item located in Section K #16, Bates Page # 01614).

3. Design Issues

- a. U.W. Seiffert, et al., VW, "Development Problems with Inflatable R estraints in Sm all Passenger Cars," 5/72.
- b. N.E. Shoemaker, D.J. Biss, Calspan, "Development of an Airbag on Collapsible Dashpanel Restraint System For Right Front Seat Occupants," 1974.
- c. NHTSA, "Development of Improved Inflation Techniques," HS-802-021, 9/76.
- d. D.J. Romeo, Talley Industries, "Driver & Passenger Airbag Unit Assemblies," 2/80.
- e. D.J. Biss, et al., NHTSA, "A System Analysis Approach to Airbag Design & Development," 8th Int'l ESV Conf., 10/80.
- f. H. Takeda, et al., Honda, "Optimizing Knee Restraint Characteristics for Improved Air Bag System Performance of a Small Car," 9th ESV Conf., 11/82.
- g. G.F. Kirchoff, et al., Morton Thiokol, "Advanced Concepts for Driver Air Cushion Systems," 10th ESV Conf., 7/85.
- h. D. Breed, V. Castelli, "Problems in Design & Engineering of Air Bag Systems," 1988.
- I. L. Johansson, et al., Volvo, "Development of Advanced Airbag Concept," 12th ESV Conf., 5/89.
- j. NHTSA, "Air Bag Deployment Characteristics," HS-807-869, 2/92.
- k. K. Seki et al., Honda, "Design Considerations of Passenger Airbag System," 13th Int'l ESV Conf., 11/91.
- 1. D. Breed, Automotive Technologies, "Complete Frontal Crash Sensor System 1," 1993.
- m. G.L. Mahon et al., Breed Automotive, "Tradeoffs Encountered in Evaluating Crash Sensing Systems," 1993.
- n. D.J. Romeo, "Mid-Atlantic Driver Air Bag," 14th Int'l ESV Conf., 5/94.
- o. G. E. Mouchahoir et al., NHTSA, "Interaction of Air Bags & Child Restraints," 14th Int'l ESV Conf., 5/94.
- p. U. Schulte et al., Opel, "Theoretical Optimization Study of Airbag System," 14th Int'l ESV Conf., 5/94.
- q. K. Komp as, BMW, "Opportunities & Limits of Airbag Optimization Based on Passive Requirements of Standard 208," 14th Int'l ESV Conf., 5/94.
- r. M. Kreuzer, KS Automobile, "The Air Inflator-Contribution to Improving the Airbag System," 14th Int'l ESV Conf., 5/94.
- s. M.R. Powell & A.K. Lund, IIHS, Leading Edge Deployment Speed of Production Air Bags, 2/95 (item located in Section K #16, Bates Page #01544).
- t. J.R. Crandall, et al., U.VA, "Air & Knee Bolster Restraint System: Laboratory Sled Tests with Human Cadavers & the Hybrid III Dummy," J. of Trauma: Injury, Infection & Critical Care, 4/95.
- u. Y. Deng, General Motors, How Air Bags & Seat Belts Work Together in Frontal Crashes, 1995.

- v. R. Morgan et al., "On The Synergism of the Driver Air Bag & the 3-Point Belt in Frontal Collisions," 1995.
- w. P. Prasad et al., Ford, "Consideration for belted FMVSS 208 Testing," 15th Int'l ESV Conf., 1996.
- x. H. Helleman, et al., Breed Technologies, "Seat & Airbag Design to Mitigate Frontal Crash Lower Limb Injuries," 1996.
- y. Transport Canada, "Pedal Extensions for Short Drivers: Preliminary Ergonomics Assessment," 1/97.

4. Ear Damage

- a. NHTSA, "Noise & Inflatable Restraint Systems," 4/71.
- b. H.J. Richter, et al., University of Michigan, "Otologic Hazard of Airbag Restraint System," 18th Stapp Car Crash Conf., 12/74.
- 5. Environmental Impacts
 - a. EPA Review of Draft from National Highway Traffic Safety Administration Regarding Future Use of Airbags, 5/23/77 & 8/15/77.
 - b. L.J. Partridge, Arthur D. Little, "Investigation of Potential Human & Environmental Impacts Associated with Motor Vehicle Airbag Restraint Systems," 6/79.
 - c. Arthur D. Little, "Identification of Approaches for the Control of Health, Environmental, & Safety Hazards Associated with Airbag Use & Disposal," 8/79.
 - d. G.F. Kirchoff, Morton Thiokol, Inc., "Disposal of Inflators for Airbag Systems," 10/84.

6. General

- a. NHTSA, "Occupant Protection Program, Progress Report No. 2," 4/79.
- b. SAE, "Glossary of Automotive Inflatable Restraint Systems," 4/88.
- c. R.E. Maugh, "Supplemental Driver Airbag System Ford Motor Company Tempo & Topaz Vehicles," 10th ESV Conf., 7/85.
- d. H. Burst, et al., Porsche, "Airbag System in the Porsche 944," 1988.
- e. J.C. Marsh, Ford, Evaluating the Safety of Air Bags, 5/95 (item located in Section K #16, Bates Page # 01571).
- f. W.T. Hollowell, et al., NHTSA, "Improving Occupant Protection Systems in Frontal Crashes," 1996.
- g. NHTSA, "Effectiveness of Occupant Protection Systems & Their Use," Third Report To Congress, 12/96. aries
- 7. Injuries
 - a. D.F. Huelke et al., "Air Bag Injuries & Occupant Protection," J. of Trauma, 1992.
 - b. L.V. Lombardo et al., NHTSA, "Detection of Internal Injuries in Drivers Protected by Air Bags," 8/93.
 - c. F. Zuppichiniet al., "Severe & Fatal Lesions in Cars Fitted with Airbags: Case Reports," 14th Int'l ESV Conf., 5/94.
 - d. K.B. Gross et al., GM, "Acute Pulmonary Response of Asthmatics to Aerosols & Gases Generated by Airbag Deployment," American J. of Critical Care Medicine, 1994.
 - e. D.F. Huelke et al., "Upper Extremity Injuries Related to Air Bag Deployments," AAAM-IRCOBI, 9/22/94.
 - f. J.S. Augenstein, et al., "Occult Abdominal Injuries to Airbag-Protected Crash Victims: A Challenge to Trauma Systems," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - g. A.R. Burgess, et al., "Lower Extremity Injuries in Drivers of Airbag-Equipped Automobiles: Clinical & Crash Reconstruction Correlations," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - h. E.L. Freedman, et al., "Automotive Airbag-Related Upper Extremity Injuries: A Report of Three Cases," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - I. J. A. Gault, et al., "Ocular Injuries Associates with Eyeglass Wear & Airbag Inflation," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - j. D.F. Huelke, et al., "Upper Extremity Injuries Related to Airbag Deployments," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - k. S.M. Sastry, et al., "Retinal Hemorrhage Secondary Airbag-Related Ocular Trauma," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - 1. W.S. Smock, et al., "Airbag Module Cover Injuries," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - m. F.H. Walz, et al., "Airbag Deployment & Eye Perforation by a Tobacco Pipe," J. of Trauma: Injury, Infection & Critical Care, 4/95.
 - n. L.M. Taylor, et al., Conrad Technologies Inc., and R.M. Morgan, et al., NHTSA, Detecting Arm Trauma from a Deploying Driver Air Bag, 11/95 (item located in Section K #16, Bates Page # 01596).
 - o. T.A. Kress, et al., "Discussion of the Air Bag System & Review of Induced Injuries," 1996.

8. On-Road Performance

a. C. Cooke, NHTSA, "Updated Fatality Rates for Air Bag & Equivalent Cars in the Field," 2/79.

- b. D.J. Romeo, et al., Romeo Kojyo Co., "Driver Airbag Police Fleet Demonstration Program 24 Month Progress Report," 10th ESV Conf., 7/85.
- c. H.J. Mertz, GM, "Restraint Performance of 1973-76 GM Air Cushion Restraint System," 1988.
- d. D.J. Romeo, et al., Autoliv North America, "Vehicle Tests Required for Air Bag System Design," 12th ESV Conf., 5/89.
- e. P.L. Zador, IIHS, "Driver Fatalities in Frontal Impacts: Comparisons between Cars with Airbags & Manual Belts," 10/91.
- f. HLDI, "Driver Injury Experience in 1990 Models Equipped with Airbags or Automatic Belts," 10/91.
- g. D.F. Huelke et al., "Field Investigation of the Performance of Air Bag Deployments in Frontal Crashes," 10/5/92.
- h. A.K. Lund, et al., IIHS, "Driver Fatalities in 1985-1993 Cars With Airbags," J. of Trauma, Infection & Critical Care, 4/95.
- I. D.J. Dalmotas, et al., Transport Canada, "Airbag Deployments Crashes in Canada," 1996 (item located in Section E #19).
- j. NHTSA, "Fatality Reduction by Air Bags: Analysis of Accident Data through Early 1996," DOT HS# 808-470, 8/96.
- k. J.V. Werner et al., State Farm, "Survey of Airbag Involved Accidents, An Analysis of Collision Characteristics, System Effectiveness & Injuries," 1994.
- J. Werner, et al., State Farm, Performance Variations Among Air Bags In Actual Crashes, Int 1 Symposium on Sophisticated Car Occupant Safety Systems, 11/29/94 (item located in Section E, #17r).
- m. A.F. Lund, IIHS, "Fatalities in Airbag-Equipped Cars: A Review of 1989-93 NASS Cases," 2/96.
- n. S.A. Ferguson, et al., IIHS, Preliminary Report: Initial Estimates of Reduction in Deaths in Frontal Crashes among Right Front Passengers in Vehicles Equipeed with Passenger Airbags, 9/96 (item located in Section E, #18j).
- o. B. Fildes, et al., Monash University, Effectiveness of Airbags in Australia, 1996 (item located in Section E, #19).
- 9. Out of Position Occupant
 - a. B. Aldman, et al., Volvo, "Possible Effects of Airbag Inflation on a Standing Child," 9/74.
 - b. A.F. Williams, IIHS, "Air Bags & Out-Of-Position Children: A Survey," 6/19/75.
 - c. NHT SA, "Investigation of Some Responses of Out-of Position Driver in ACR S-Equipped Oldsmobile During Crash Induced Bag Deployment," HS -802-315, 5/77 (Exc erpt).
 - d. H. Take da et al., Hon da, "Injuries to Children From Airbag Deployment," 8th Int'l ESV Conf., 10/80.
 - e. D.T. Zinke, NHTSA, "Final Report: Small Car Front Seat Occupant Inflatable Restraint System," HS# 801-809, 4/81.
 - f. R.L. Stalnaker, et al., GM, "Unrestrained, Front Seat, Child Surrogate Trajectories Produced by Hard Braking," 26th Stapp Car Crash Conf., 10/82.
 - g. F. Montalvo, et al., GM, "Possible Position & Postures of Unrestrained Front-Seat Children at Instant of Collision," 9th ESV Conf., 11/82.
 - H.J. Mertz, et al., GM, "Responses of Animals Exposed to Deployment of Various Passenger Inflatable Restraint System Concepts for a Variety of Collision Severities & Animal Positions," 9th ESV Conf., 11/82.
 - I. T. Turbell, Swedish Road & Traffic Research Institute, "Are Air Bags Compatible With Child Restraint Systems & Roadside Safety Features," 14th Int" ESV Conf., 5/94.
 - j. A. Malczyk et al., Petri AG, "Airbag Folding Pattern as a Means for Injury Reduction of Out-Of-Position Occupants," 1995.
 - k. NHTSA, "Evaluating Out-Of-Position Vehicle Occupant Interaction With Deploying Air Bags," 12/14/95.
- 10. Reliability Issues
 - a. NHTSA, "Electromagnetic Interference Effects on Motor Vehicle Electronic Control & Safety Devices," HS-802-107, 11/76.
 - b. NHTSA, "Airbag Inflator Reliability," 9/79.
 - c. S. Kobayashi, et al., Honda, "Reliability Considerations in the Design of an Airbag System," 11th ESV Conf., 5/87.
- 11. Smart Restraint Systems
 - a. S. Andrews, TRW, "Occupant Sensing In Smart Restraint Systems," 10/95.

- b. A. Bernat, Takata, "'SMART' Safety Belts For Injury Reduction," 10/95.
- c. S. Fredin, Morton, "Injury Reduction Potential For'SMART' Airbags," 10/95.
- d. H.G. Johannessen & M. Mackey, Omni Safety, "Why 'Intelligent' Automotive Occupant Restraint

Systems?", 10/95.

- e. H. J. Miller, Allied Signal, "Injury Reduction With Smart Restraint Systems," 10/95.
- f. B.W. Smith et al., "'SMART' Airbag system," 13th International ESV Conf., 5/94.

12. Startle

a.

H.H. Ziperman, et al., "Startle Reaction to Airbag Restraints," AMA J., 8/4/85.

13. Testing & Injury Measurement for Airbags

- a. J.D. Horsch, et al., GM, "Study of Driver Interactions with Inflating Air Cushion," 23rd Stapp Car Crash Conf., 10/79.
- b. L. Grosch, Daimler-Benz, "Injury Criteria for Combined Restraint System," 10th ESV Conf., 7/85.
- L.C. Lundstrom, GM, "Relating Air Cushion Performance to Human Factors & Tolerance Levels," 5th ESV Conf., 6/74 (Excerpt).
- d. NHTSA, "Child Restraint/Passenger Air Bag Interaction Analysis," HS# 808-004, 10/92.
- e. M. Reed, et al., UMTRI, "Laboratory Techniques for Assessing Skin Abrasion Potential of Airbags,"1993.
- f. T. Sugimoto et al., Honda, "Laboratory Assessment of Potential for Airbag-Induced Skin Abrasion," 14th Int'l ESV Conf., 5/94.
- g. NHTSA, "Status Report: On Issue of Testing Air Bag-Equipped Vehicles With & Without Belt Restraints At Different Speeds," 11/2/95.
- h. D. Kallieris et al., "Comparison of Sled Tests with Real Traffic Accidents, 1995.
- I. NHTSA, "Child Neck Injury Benefits," 11/14/96.
- j. M. Powell & D. Zuby, IIHS, "Injury Risk & Seating Position for Fifth-Percentile Female Drivers -- Crash Tests With 1990 Lincoln Town Cars," 7/97.
- k. D. Zuby, et al, IIHS, "An Example of the Crash Protection Provided by a Driver Airbag in an Offset Crash Test," 7/97.

14. Patents

b.

- a. Hull et al., Patent # 5,201,543 4/93 & Patent # 5,174,599 (driver bag protective cushion).
 - #5,494,311; 02/27/1996

J. Bibliography

- 1. Passive Restraint Systems
- 2. Articles Available from the American Trial Lawyers Association (ATLA)
- 3. SAE Papers on Air Bags

K. Recalls & Investigations

- 1. Summary of Safety Recall Campaigns
- 2. Detailed Manufacturer 49 CFR Part 573 Recall Reports
 - a. Alfa Romeo
 - b. BMW
 - c. Chrysler
 - d. Ford
 - e. GM
 - f. Honda
 - g. Hyundai
 - h. Isuzu
 - I. Lotus
 - j. Mazda
 - k. Mercedes-Benz
 - l. Nissan
 - m. Rolls-Royce
 - n. Toyota
 - o. TRW
 - p. Volvo
 - q. Saab

- r. Porsche
- s. Land Rover
- t. Volkswagen
- 3. PE93-063/EA93-024, 1992-93 Nissan Maxima (Inadvertent Deployment)
 - a. NHTSA PE93-063 opening memo
 - b. NHTSA to Nissan, 7/26/93 & 8/24/93
 - c. Nissan to NHTSA, 9/30/93 (selected attachments)
 - d. NHTSA memo upgrading PE to EA, 10/8/93
 - e. NHTSA to Chrysler, Honda, Mazda & Toyota re inadvertent deployments, 10/21/93 (see H.10-13 supra for responses); NHTSA to Nissan, 10/27/93
 - f. Nissan to NHTSA, 11/1/93, 11/3/93, 11/24/93, 12/10/93
 - g. Nissan to NHTSA agreeing to recall (94V-007), 1/10/94
 - h. NHTSA to Nissan, 1/13/94
 - I. Closing memo & index, 1/25/94
- 4. PE93-095/EA94-015, 1990-93 Volvo 200, 700 & 900 Series (In advertent Deployment)
 - a. NHTSA opening memo, 11/23/93
 - b. NHTSA to Volvo, 12/93
 - c. Volvo response (selected attachments), 1/18/94
 - d. NHTSA, memo upgrading PE93-095 to EA94-015, 4/20/94
 - e. NHTSA to Volvo, 5/10/94
 - f. NHTSA to Mercedes-Benz, 6/10/94
 - g. NHTSA to Bosch, 6/14/94
 - h. Volvo response (selected attachments), 7/6/94
 - I. Volvo further response (selected attachments), 7/15/94
 - j. Mercedes-Benz response, 7/26/94
 - k. Bosch response, 7/27/94
 - 1. NHTSA to Bosch, request for more information, 8/23/94
 - m. Bosch response, 9/8/94
 - n. Volvo to NHTSA, Recall 94V-185, 9/27/94
 - o. NHTSA closing resume & index, 10/12/94
 - p. NHTSA to Volvo, 11/1/95
 - q. Volvo response (selected attachments), 12/8/95
- 5. PE94-023/EA94-026 1989-94 Audi 80/90, 100/200 series (Inadvertent Deployment)
 - a. NHTSA opening resume & index, 3/7/94
 - b. NHTSA to Volkswagen, 3/11/94
 - c. Volkswagen response (selected attachments), 5/13/94
 - d. Volkswagen further response (selected attachments), 5/24/94
 - e. NHTSA opening resume to EA94-026 & index, 7/19/94
 - f. NHTSA to Volkswagen, 8/17/94
 - g. Volkswagen response, 10/12/94
 - h. NHTSA to Volkswagen, request for additional information, 2/14/95
 - I. Volkswagen response, 4/12/95
 - j. NHTSA memo on 7/6/95 meeting with Audi, 7/10/95
 - k. NHTSA closing resume & report, 7/28/95
 - 1. Audi letter to NHTSA re phone request, 8/1/95
 - m. NHTSA to Volkswagen, need for monitoring of similar failure reports, 9/20/95
- 6. PE94-040, 1993 Chevrolet Corsica/Beretta (Airbag Separation)
 - a. NHTSA opening resume & index, 5/6/94
 - b. NHTSA to GM, 6/3/94
 - c. GM response, 7/1/94
 - d. NHTSA closing resume & report, 9/27/94

- 7. PE94-041, Morton Gen II Inflator (Airbag Separation)
 - a. NHTSA opening resume & index, 5/6/94
 - b. NHTSA to Morton, 6/7/94
 - c. Morton response, 6/30/94
 - d. Morton further response, 7/25/94
 - e. Morton further response, 9/29/94
 - f. NHTSA closing resume & report, 9/27/94

8. PE 94-088/EA95-013, 1991-93 BMW 3, 5, 7, 8-series (Airbag Wiring)

- a. NHTSA opening resume & index, 11/25/94
- b. NHTSA to BMW, 12/5/94
- c. BMW response, 2/21/95
- e. NHTSA Opening resume to EA95-013 & index, 3/31/95
- f. NHTSA to BM W, 4/24/95
- g. BMW response, 7/3/95
- h. NHTSA to BMW, request for additional information, 11/8/95
- I. BMW response, 12/14/95
- j. NHTSA to BMW, request for more information, 4/22/96
- k. BMW response, 5/8/96
- 1. NHTSA file memo on 5/9/96 meeting with BMW, 5/24/96
- m. NHTSA closing resume & report (recall 96V-110), 3/31/95
- 9. PE95-018/EA95-024, 1992-93 A cura Legend & H onda Pre lude (Oversensitive Deployment)
 - a. Opening Resume, 3/27/95
 - b. NHTSA to Honda, 4/5/95
 - c. Honda response (selected attachments), 6/22/95
 - d. Honda further response, 8/30/95
 - e. EA95-024 Opening resume, 8/31/95
 - f. NHTSA to Honda, 10/31/95
 - g. Honda response, 1/22/96
 - h. Honda further response (selected attachments), 2/9/96
 - I. Honda further response, 3/5/96
 - k. NHTSA, memo on 3/14/97 meeting with Honda, 3/25/96
 - 1. Honda to NHTSA, copies of slides used at 3/14/96 meeting, 4/5/96
 - m. NHTSA to Honda, granting of confidentiality, 3/15/96 & 4/16/96
 - n. NHTSA closing resume report, 8/30/96
- 10. PE95-027/EA95-022, 1992-1994 Mercury Grand Marquis (Passenger Module Detachment)
 - a. PE index & Opening resume, 5/3/95
 - b. Accident report, 5/5/95
 - c. NHTSA to Ford, 5/25/95
 - d. Ford response, 8/3/95
 - e. Memo upgrading PE95-027 to EA95-022, 8/31/95
 - f. NHTSA to Ford, 11/8/95
 - g. Ford response, 12/22/95
 - h. Ford further response, 2/29/96
 - I. NHTSA to Ford, request for more information, 5/20/96
 - j. NHTSA closing resume & EA index, 7/24/96
 - k. Ford response, 9/13/96
- 11. PE96-014, 1995 Honda Accord (Inadvertent Deployment)
 - a. Opening resume, 2/23/96
 - b. NHTSA to Honda, 2/28/96
 - c. Honda response (selected excerpts), 4/19/96
 - e. Honda further response, 6/27/96

- f. Honda further response, 8/16/97
- g. Closing resume, 10/31/96
- 12. PE96-020, 1994-95 Dodge Ram & 1995 Neon (Fire Causes Inflator Projectile)
 - a. NHTSA opening resume & incidence reports, 3/8/96
 - b. NHTSA to Chrysler, 3/25/96
 - c. Memo on 3/12/96 meeting with Chrysler, TRW, 3/25/96
 - d. Chrysler response & request for confidentiality, 5/3/96
 - e. NHTSA confidentiality response, 5/16/96
 - f. Closing resume & index, 10/29/96
- 13. PE96-021, TRW (Fire Causes Inflator Projectile)
 - a. NHTSA opening resume, 3/8/96
 - b. NHTSA to TRW, 3/25/96
 - c. TRW response, 4/5/96
 - d. TRW further response, 4/15/96
 - e. TRW further response, 5/9/96
 - f. TRW further response, 7/3/96
 - g. Closing resume & index, 10/29/96
- 14. PE96-031/ EA96-023, 1996 GM W-Cars, Lumina/Grand Prix/Regal/Cutlass Supreme (Inadvertent Deployment)
 - a. NHTSA opening resume, 4/48/96
 - b. NHTSA to GM, 4/25/96
 - c. GM response, 8/1/96
 - d. Memo upgrading PE96-031 to EA96-023, 9/27/96
 - e. NHTSA to GM, 1/31/97
 - f. GM response (with selected attachments), 5/8/97
 - g. Closing Resume for EA
- 15. PE96-075/EA97-010, 1994-95 Subaru Impreza & 1995-96 Legacy (Oversensitive Deployment)
 - a. NHTSA Opening Resume, 12/18/96
 - b. NHTSA to Subaru, 1/7/97
 - c. Subaru response, 3/11/97
 - d. NHTSA opening resume EA97-010, 4/30/97
 - e. NHTSA to Subaru, 6/23/97
- 16. DP 96-014, 1990-92 Ford Taurus (Airbag Aggresivity)
 - a. Investigation index
 - b. CAS defect petition, 11/8/96, 12/12/96
 - c. IIHS to NHTSA, 12/20/96
 - d. NHTSA to Ford, 1/7/97
 - e. Ford response, 2/12/97, 3/21/97
 - f. CAS to NHTSA, 3/24/97
 - g. IIHS to NHTSA, 4/8/97
 - h. NHTSA memo to file on IIHS 12/20/96 letter, 6/6/97
 - i. NHTSA denial of CAS petition, 62 FR 41477, 8/1/97
- 17. DP 96-014, 1994-96 Chrysler Minivan (Airbag Aggresivity)
 - a. Investigation index
 - b. CAS defect petition, 11/8/96, & CAS to NHTSA, 12/12/96
 - c. IIHS to NHTSA, 12/20/96 (located in 16b supra)
 - d. NHTSA to Chrysler, 1/7/97
 - e. Chrysler response, 2/21/97
 - f. NHTSA denial of CAS petition, 62 FR 41477, 8/1/97 (located in 16i supra)

- 18. DP 96-014, 1991-92 Chevrolet Corsica (Airbag Aggresivity)
 - a. Investigation index
 - b. CAS defect petition, 11/8/96 & CAS to NHTSA, 12/12/96
 - c. IIHS to NHTSA, 12/20/96 (located in 16b supra)
 - d. NHTSA to GM, 1/7/97
 - e. GM Response, 3/17/97
 - f. NHTSA denial of CAS petition, 62 FR 41477, 8/1/97 (located in 16i supra)
- 19. PE97-006/EA97-012, 1995-96 M azda 626 & MX 6 (Oversensitive Dep loyment)
 - a. NHTSA opening resume and screen resume, 1/30/97
 - b. NHTSA to Mazda, 2/6/97
 - c. Mazda response (selected attachments), 4/10/97
 - d. Mazda further response, 4/30/97
 - e. NHTSA memo upgrading PE97-006 to EA97-012, ????
- 20. PE97-008, 1990-92 Chevy Camaro & Pontiac Firebird (In advertent Deployment)
 - a. Screen resume & investigation index
 - b. NHTSA opening resume, 2/3/97
 - c. GM 527 Supplement, 06/24/1997
 - d. NHTSA to GM, 2/4/97 & GM response (selected attachments), 4/10/97
 - e. Closing memo, 6/30/97
- 21. PE97-014, 1995-97 Hyundai Accent & 1994-95 Hyundai Sonata/Elantra (Deployment Causing Fire)
 - a. NHTSA opening resume, 4/4/97
 - b. Screen Resume
 - c. NHTSA to Hyundai, 4/28/97
 - d. NHTSA to Bullock & Brodnax, regarding testing of airbag assembly, 4/28/97
 - e. Hyundai response, 6/13/97
 - f. NHTSA closing resume, 8/26/97
- 22. PE97-015, AlliedSignal Passenger Airbag (Deployment Causing Firs)
 - a. NHTSA opening resume and index, 4/4/97
 - b. NHTSA to AlliedSignal, 4/28/97; NHTSA to Bullock & Brodnax, 4/16/97
 - c. Harvey, Kruse, Westen & Milan to NHTSA, 5/9/97
 - d. Bullock & Brodnax to AlliedSignal, 4/11/97
 - e. AlliedSignal response to NHTSA, 6/16/97
 - f. NHTSA closing resume, 8/26/97
- 23. PE97-017, 1995 Toyota corrolla & Geo Prizm (Deployment Causing Fire)
 - a. NHTSA opening resume, 4/23/97
 - b. NHTSA to Toyota, 5/23/97
 - c. NHTSA to GM, 5/23/97
 - d. NHTSA to Takata, 5/29/97
 - e. NHTSA to TRW, 5/29/97
 - f. TRW response (selected attachments), 7/11/97
 - g. Takata Response, 8/7/97
 - h. Toyota Response, 8/7/97
- 24. PE97-041, 1996 & 97, Chevrolet Cavalier (Deployment)
 - a. NHTSA Opening Resume, 9/9/1997
 - b. NHTSA to GM, 9/19/1997
 - c. GM response- confidentiality request, 11/25/1997
 - d. Consumer Complaints
 - e. Upgraded Resume confidentiality approved, 1/23/1998

- 25. PE97-042, 1995 Chrysler (deployment)
 - a. NHTSA Opening Resume, 9/16/1997
 - b. NHTSA to Chrysler, 9/19/1997
 - c. Chrysler response, 11/26/1997
- 26. PE97-046/upgraded to EA 98-006, Chrysler (De ployment)
 - a. Opening Resume, 10/24/97
 - b. NHTSA to Chrysler, 11/4/97
 - c. Consumer Complaints
 - d. Upgraded Resume, 2/27/98
- 27. PE97-047
- 28. PE97-049 (Chrysler, Airbag Circuit Failure)
 - a. Opening Resume, 11/18/1997
 - b. ODI to Chrysler, 11/25/1997
 - c. Chrysler request for extension, 12/06/1997
 - d. Chrysler response, 01/30/1998
 - e. Closing Resume, 03/13/1998
- 29. EA98-001 (GM, Cavalier, Sunfire) Deployment
 - a. Opening Resume, 1/23/1998
 - b. ODI to GM, 5/4/1998
 - c. GM response, 6/26/1998
 - d. Closing Resume, 7/31/1998
 - e. Recall information
 - f. GM to NHTSA
- 30. EA98-0003, XCR Neon, Oversensitive Airbag Deployment
 - a. Opening Resume 01/30/1998
 - b. ODI to Chrysler, 2/20/1998
 - c. Chrysler response, 4/28/1998
 - d. Chrysler (additional info), 8/19/1998
- 31. EA98-004 (Cadillac, Inadvertent Deployment)
 - a. Opening Resume, 2/24/1998
 - b. ODI to GM
 - c. Date closed 6/16/1998
- 32. EA98-006 (XCR Minivan)
 - a. Opening Resume, 5/27/1998
 - b. ODI to Chrysler, 5/22/1998
- 33. PE98-033, Mitsubishi & Chrysler
 - a. Opening Resume, 5/27/1998
 - b. ODI to Chrysler, Mitsubishi, 6/9/1998
 - c. Chrysler response, 8/19/1998