REQUEST FOR INTER PARTES REVIEW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: PR00064
Duane Donald Fortune et al.	Issued: January 4, 2000
U.S. Patent No. 6,012,007	Application No. 08/8687,338
Filing Date: June 3, 1997	

For: OCCUPANT DETECTION METHOD AND APPARATUS FOR AIR BAG SYSTEM

DECLARATION OF DR. STEPHEN W. ROUHANA

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I, Stephen W. Rouhana, of Plymouth, Michigan, declare as follows:

I. INTRODUCTION AND BACKGROUND

1. My Curriculum Vitae is attached hereto, and it includes a listing of my prior experience. My background, education, and professional experiences are summarized below.

2. I received my B.S. degree with a triple major in Physics, Mathematics, and Religious Studies from Manhattan College, Riverdale, NY, in 1977 and my M.S. and Ph.D. degrees in Physics from Rensselaer Polytechnic Institute, Troy, NY, in 1981 and 1983, respectively.

3. I have over 30 years of experience in the field of automotive safety, including research and development of airbags, seat belts, sensors, algorithms, crash test dummies, biomechanics, out-of-position injuries, and many other topics. Some of this work is outlined below.

4. I was hired as a Senior Research Scientist by the Research Laboratories of General Motors Corporation (hereafter, GMR) in May of 1983 to perform research in the Biomedical Science Department's Crash Injury Section. Initially, I performed basic research to understand mechanisms of injury in automotive crashes. After promotion to Staff Research Scientist in 1987, in addition to continuing research on

crash injury prevention, I was appointed to the GM Belt Restraint Technical Committee which reviewed and oversaw vehicle program developments of seat belt systems and their operation in conjunction with airbags. During this time my research included research into crash test dummies and their ability to assess injury in car crash tests. This led to a publication titled “Use of Crash Test Dummies for Injury Assessment" (Proceedings of the Inaugural International Body Engineering Conference, IBEC Ltd Publications, 1993). In 1992, I was appointed to the SIR (Supplemental Inflatable Restraint, or Airbag) Performance Assessment Committee (SIR PAC). The SIR PAC oversaw vehicle program developments of airbags, including assessment of “All-Fire” and “No-Fire” thresholds. My role was representing the biomechanics community at GM which, among other things, considered effects of airbags on out-of-position occupants. During this time, I developed a method to measure the speed of the leading edge of a deploying airbag because it was believed to be related to risk of out-of-position injury risk. This led to a publication the Journal of Trauma, titled “"Physical and Chemical Characterization of Air Bag Deployment Effluents" (J. Trauma, Vol. 38(4):528-532, 1995). Around this time I also began developing a method to measure and assess risk of injury from the noise associated with airbag deployments. This work led to

three publications while I was at GM, viz. (a) "Investigation into the Noise Associated with Air Bag Deployment: Part 1 - Measurement Technique and Parameter Study" (38th Stapp Car Crash Conference Proceedings, SAE Technical Paper No. 942218, 1994), and (b) “Ear Injury and Hearing Loss with Automobile Airbag Deployments” (Accident Analysis & Prevention Vol. 31, 1999), and (c) “Investigation into the Noise Associated with Airbag Deployment: Part II – Injury Risk Study Using a Mathematical Model of the Human Ear” (42nd Stapp Car Crash Conference Proceedings, SAE Technical Paper No. 983162, 1998). Finally, at GM, I participated in a laboratory investigation of arm injuries from deploying airbags to out-of-position occupants in car crashes which led to a publication titled "Assessment of Airbag Aggressivity Relative to Airbag-Induced Forearm Fractures" (Stapp Car Crash Journal, Volume 45, 2001).

5. In the late 1980s, because of the expertise I had developed in the field of automotive safety, I was asked to participate in various committees of the Society of Automotive Engineers (hereafter, SAE). Among these committees were, the SAE Inflatable Restraints Standards Committee (ca 1991-2014), the SAE Restraint Systems Standards Committee (1989-1996), and the SAE Impulse Noise Task Force (SAE INTF) of the Inflatable Restraints Standards Committee. I was a voting

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