A Brief History of the Air Bag Development

Implementation Activities of the United States Government

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Air Bag Development and Performance – Chapter One - Introduction

- **Air bag development and implementation by the U. S. Government**
- **Either Secretary of Transportation or NHTSA played key role**
- **Two primary activities: research and rulemaking**

Air Bag Development and Performance – Chapter One - Introduction

- **Air bag effort by government divided into two phases**
- **First phase 1967 – 1981**
- **Second phase 1982 - present**

Air Bag Development and Performance – Chapter One – Research 1967 to 1981

- **Addressed limited scope of frontal impact**
- **Single vehicle collision with rigid barrier**
- **Vehicle and sled tests at upper level of crash severity or delta-V**
- **Few tests at severities near sensor threshold**
- **In the main, adult occupants used in a 'Normal Seating Position'**

Air Bag Development and Performance – Chapter One – Research 1967 to 1981

- **Efforts predominantly experimental rather than analytical**
- **Sled testing followed by a few vehicle to rigid barrier crashes**
- **Experimental focus due to lack of viable vehicle/occupant restraint models**

Air Bag Development and Performance – Chapter One – Research 1967 to 1981

- **No significant crash sensor work**
- **Air bag actuation by delayed-action strip switches or by production sensors taken from early air bag-equipped vehicles**

Air Bag Development and Performance – Chapter One – Research 1982 to Present

- **Real-world crash investigations monitored the field performance of production air bag systems**
- **Vehicle crash testing in early 1980's evaluated retrofit air bag systems**
- **Computer models used to investigate performance of air bag systems**

Air Bag Development and Performance – Chapter One – Research 1982 to Present

- **Vehicle crash tests during 1990's mainly concerned with aggressiveness of air bag deployment**
- **Interaction of air bags with restraint systems for children**
- **Out-of-position occupant tests**
- **Vehicle crash tests to assess efficacy of 'depowered' air bags**

Air Bag Development and Performance – Chapter One – Regulatory Effort

- **Air bag regulatory effort began with Advanced Notice of Proposed Rulemaking in 1969**
- **Latest modification to FMVSS 208 issued in May 2000**
- **Period between 1969 and 1982 saw many starts and stops**
- **Dole decision in 1983 resulted in mandatory passive restraints in new vehicles**

Air Bag Development and Performance – Chapter One – Regulatory Effort

- **During the 1990's, a new round of regulatory activity began in response to injuries and fatalities in air bag deployment**
- **Initial efforts consisted of temporizing measures to make air bags less aggressive**
- **A more long-term and more complicated rule to minimize the probability of air bag caused injuries was established**