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Integrated Automotive Safety Handbook

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# Table of Contents

**Preface** ................................................................. ix

**Chapter 1 The Need to Increase Road Safety** ............................................. 1
1.1 Introduction ........................................................................ 1
1.2 Definitions ........................................................................ 3
1.3 Driving forces for increased vehicle safety ................................. 6
   1.3.1 Legislation ............................................................. 6
   1.3.2 Competition .......................................................... 11
   1.3.3 Consumer information ............................................. 12
   1.3.4 Product liability .................................................... 15
1.4 References .......................................................................... 15

**Chapter 2 Accident Research** ................................................................. 17
2.1 Introduction ........................................................................ 17
2.2 Accident data ..................................................................... 18
2.3 Application of accident research data ....................................... 22
2.4 References .......................................................................... 24

**Chapter 3 Integrated Safety** ................................................................. 25
3.1 Introduction ........................................................................ 25
3.2 Accident avoidance ............................................................. 28
   3.2.1 Human factors ......................................................... 28
   3.2.2 Comfort and ergonomics ......................................... 30
   3.2.3 Chassis and tire design ........................................... 31
   3.2.4 Vehicle assistance systems ..................................... 34
   3.2.5 Driver assistance systems ....................................... 37
      3.2.5.1 Longitudinal guidance systems ......................... 37
      3.2.5.2 Lateral guidance systems ................................. 38
      3.2.5.3 Night assistance ............................................. 39
3.3 Driver, vehicle, and environment ............................................. 46
   3.3.1 Introduction ........................................................... 46
   3.3.2 Driver modeling ...................................................... 47
   3.3.3 Vehicle data and perception ..................................... 49
      3.3.3.1 Crash prediction .............................................. 50
      3.3.3.2 Evaluation ....................................................... 52
      3.3.3.3 Environment detection ................................. 53
3.4 References .......................................................................... 59

**Chapter 4 Functions of Integrated Safety** ................................................. 63
4.1 Precrash safety ................................................................... 63
   4.1.1 Definition of the precrash phase .................................. 63
4.1.2 Automatic brake intervention .............................................. 64
4.1.3 Irreversible restraint systems ............................................. 67
4.1.4 Side precrash system ....................................................... 68
4.2 Systems to integrate avoidance and mitigation .......................... 72
  4.2.1 Preventative occupant protection ...................................... 72
  4.2.2 Integral pedestrian protection ........................................ 73
  4.2.3 From steering support to automated driving intervention ...... 75
  4.2.4 Rescue and recovery ..................................................... 77
  4.2.5 Development process of integral functions ........................ 78
4.3 Car-to-x safety ..................................................................... 79
  4.3.1 Introduction .................................................................. 79
  4.3.2 Car-to-car based functions and requirements ..................... 80
  4.3.3 Automatic braking intervention by vehicle-to-vehicle and sensor fusion .................................................. 82
  4.3.4 Cooperative driving ....................................................... 85
4.4 References ........................................................................... 86

Chapter 5 Biomechanics and Protection Criteria ..................... 89
  5.1 Biomechanics ...................................................................... 89
    5.1.1 Introduction .................................................................. 89
    5.1.2 Tolerance limits .......................................................... 90
    5.1.3 External injuries .......................................................... 91
    5.1.4 Internal injuries .......................................................... 93
  5.2 Protection criteria ............................................................... 94
  5.3 References ........................................................................... 99

Chapter 6 Mitigation of Injuries ............................................ 101
  6.1 Quasi-static test requirements on the body in white ............... 101
    6.1.1 Tests on seats and seat belt anchorage points .................. 101
    6.1.2 Roof strength ............................................................ 101
    6.1.3 Side structures .......................................................... 102
  6.2 Dynamic simulation of vehicle collisions .............................. 103
    6.2.1 Frontal collision ........................................................ 103
    6.2.2 Lateral collisions ........................................................ 107
    6.2.3 Rear end collisions ..................................................... 109
    6.2.4 Vehicle rollover ........................................................ 109
  6.3 Occupant protection ............................................................ 110
    6.3.1 Vehicle interior .......................................................... 110
    6.3.2 Restraint systems ......................................................... 111
      6.3.2.1 Safety belts ......................................................... 112
      6.3.2.2 Child restraints ................................................... 114
      6.3.2.3 Airbags .............................................................. 115
      6.3.2.4 Seats, seat back, and head rests .............................. 118
  6.4 Interaction of restraint system and vehicle .......................... 118
    6.4.1 Unbelted occupant in a frontal collision ....................... 118
6.4.2 Belted occupant ........................................... 120
6.4.3 Airbag systems ........................................... 121
6.4.4 Steering column deformation force .................. 122
6.4.5 Optimizing the restraint system function .......... 124
   6.4.5.1 Concept of “less belt–more airbag” .......... 125
   6.4.5.2 Ideal restraint effect ............................... 125
   6.4.5.3 Optimum profile of the belt force and airbag vent . . 128
   6.4.5.4 Steering column deformation force with a
degressive airbag vent control ............................ 133
   6.4.5.5 Summary of optimization ............................ 134
6.4.6 Lateral collisions ........................................ 136
   6.4.6.1 Theoretical analysis .................................. 136
   6.4.6.2 Side impact test defined in the U.S. and Europe .. 137
6.5 References .................................................... 138

Chapter 7 Adaptive Occupant Protection .................. 141
7.1 Requirements based on the accident situation ........ 141
7.2 Individual occupant protection .......................... 143
   7.2.1 Accident severity ..................................... 143
   7.2.2 Individuality of the occupants ...................... 147
      7.2.2.1 Seat settings ..................................... 149
      7.2.2.2 Age of the occupants ............................. 150
   7.2.3 Weighting of the main influencing factors ......... 151
7.3 Airbag control concepts ..................................... 153
   7.3.1 Mass flow control ................................... 153
   7.3.2 Volume control ...................................... 156
   7.3.3 Vent control with constant pressure ............... 156
   7.3.4 Airbag vent switching once .......................... 157
   7.3.5 Switchable belt force limiter ....................... 158
   7.3.6 Comparison between the airbag control concepts . 159
7.4 Occupant and accident severity-specific adaptivity .... 161
   7.4.1 Airbag vent control with switching belt force limiter. 161
   7.4.2 Self-adaptation of the belt force for different occupants. 162
   7.4.3 Potential for the occupant without seat belt ....... 162
   7.4.4 System function and potential for the front-seat passenger . 163
   7.4.5 Summary of adaptivity ............................... 164
7.5 Estimate of the potential of adaptive restraint systems in a real accident .. 165
   7.5.1 Injury probability ................................... 165
   7.5.2 Principal problems with transferring the potential determined in simulation techniques to real accident situations .... 167
   7.5.3 Equivalent accident severity ....................... 168
   7.5.4 Calculation of the virtual injury distribution in the field .... 170
   7.5.5 Effectiveness and benefit of adaptive restraint systems
      in the field ............................................. 171
7.6 References .................................................... 172
Preface

This book describes all areas of vehicle safety: accident avoidance, pre-crash technologies, mitigation of injuries, and post-crash technologies. Special attention is given to driver assistance systems and to compatibility between vehicles in car-to-car crashes as well as pedestrian protection. Several countries have achieved a high level of vehicle safety; however, more than 1.2 million fatalities still occur each year on roadways worldwide. These metrics indicate a continuing need to improve vehicle and road safety.

New technologies in sensors and electronic control units and the growing knowledge of car-to-car and car-to-infrastructure technologies have fused the previously separate areas of accident avoidance (popularly known as “active safety”) and injury mitigation (popularly known as “passive safety”) into the newer concept of “integrated vehicle safety.” This new approach represents a further step in reducing accident rates. In this book we detail a significant number of integrated vehicle safety solutions.

We hope that this book will be useful for those who are interested in the complex field of automotive safety. In particular, experts from industry and academia, as well as students, can learn new details of vehicle safety engineering within the broad perspective of vehicle safety today.

Both of us have many years of experience in the field of vehicle safety engineering in both industrial research and development (R&D) and as associated lecturers at the University of Braunschweig, Germany. We thank the many people who have supported the creation of this book, especially from Audi AG, Daimler AG, and Volkswagen AG.

The views and opinions expressed in this book are those of the authors and not necessarily those of any academic institution or other entity.

—Ulrich Seiffert and Mark Gonter