Pedestrian And Cyclist Impact

DOWNLOAD HERE

1; Table of Contents; 7 2; Foreword; 11 3; Acknowledgements; 13 4; About the Authors; 14 5; Chapter 1 Introduction; 15 5.1; References; 17 6; Chapter 2 Pedestrian and Cyclist Injuries; 18 6.1; Introduction; 18 6.2; Global View of Pedestrian and Cyclist Fatality and Injury Rates; 18 6.3; Main Pedestrian and Cyclist Injury Database Sources; 20 6.4; Distribution of Pedestrian Injuries; 21 6.5; Distribution of Cyclist Injuries; 23 6.6; Injury Risk as a Function of Age and Sex; 29 6.7; The Distribution of Vehicle Impact Speeds; 30 6.8; Injuries from Vehicle and from Ground Contact; 34 6.9; Injury Risk as a Function of Vehicle Size and Type;34 6.10;Injuries and Disabilities;37 6.11;Pedestrian Injury Trends over Time;38 6.12;Concluding Remarks;38 6.13; References;40 7; Chapter 3 Pedestrian and Cyclist Impact Kinematics;44 7.1;Introduction;44 7.2;Sources for Studying Pedestrian and Cyclist Movement;45 7.3;Classification of Pedestrian and Cyclist Impact Configurations;45 7.4; Pedestrian Sideswipe Collisions;47 7.5; Wrap Projection;48 7.6; Pedestrian/Cyclist Head Contact in Wrap Projections;53 7.7; Forward Projection;56 7.8; Post Head Impact Kinematics for Forward and Wrap Projection; 58 7.9; Cases; 58 7.10; Concluding Remarks;61 7.11; References;61 8; Chapter 4 The Relationship between Vehicle Impact Speed and Pedestrian and Cyclist Projection Distance;63 8.1;Introduction;63 8.2;Stages of Pedestrian and Cyclist Projection;64 8.3;Post Impact Separation from the Vehicle;65 8.4;Effective Coefficient of Retardation in the Ground Contact;66 8.5; Accident Data;66 8.6; Staged Tests;69 8.7; Comparison between Accident Reconstructions and Staged Tests;70 8.8; Regression Models Relating Impact Speed to Pedestrian;72 8.9; Projection Distance; 72 8.10; Physics Based Models Relating Impact Speed to Pedestrian; 74 8.11; Projection Distance; 74 8.12; Theoretical Considerations: The Particle Projection Model; 75 8.13; Wrap Projection;78 8.14;Pedestrian Forward Projection;79 8.15;Confidence Limits for Vehicle Impact Speed Prediction;82 8.16;Other Models;82 8.17;Concluding Remarks;84 8.18;References;84 9;Chapter 5 Injury Mechanisms and Injury Criteria;87 9.1;Introduction;87 9.2;Head Injuries;88 9.3;Head Injury Criteria;89 9.4; Spinal Injuries; 94 9.5; Thorax Injuries; 96 9.6; Abdominal Injuries; 98 9.7; Pelvis Injuries; 99 9.8; Lower Extremity Injuries; 99 9.9; The Long Bones: Femur, Tibia and Fibula; 100 9.10; The Knee; 104 9.11; The Ankle and Upper Extremities; 105 9.12; Concluding Remarks; 105 9.13; References; 105 10; Chapter 6

Vehicle Design Standards for Pedestrian and Cyclist Safety;110 10.1;Introduction;110 10.2;Bodies Developing Pedestrian Safety Standards;111 10.3; Types of Test Proposed;112 10.4; Subsystem Tests: Legform Impactor to Bumper;113 10.5;Upper Legform to Bonnet Leading Edge;115 10.6;Headform to Bonnet Top: Adult and Child;118 10.7;Implementation into Legislation;120 10.8;Concluding Remarks;122 10.9; References; 122 11; Chapter 7 Mathematical Formulations for Impact Modelling; 126 11.1;Introduction;126 11.2;Notation;127 11.3;Timing;128 11.4;Impulse and Momentum;129 11.5;Single Segment Formulation Using Momentum Considerations; 131 11.6; Post Primary Impact Kinematics; 132 11.7; Head Contact Time; 132 11.8; Post Head Impact Kinematics; 133 11.9; Pedestrian Formulation Using an Ordinary Differential;135 11.10; Equation (ODE) Approach;135 11.11; Rigid Body ODE Approach with a Hinge Segment;138 11.12;Three-Dimensional Effects;141 11.13;Problems with a Rigid Body Approach;142 11.14; A Finite Element Approach to Pedestrian Impact;143 11.15; Concluding Remarks;146 11.16;References;146 12;Chapter 8 Models for Simulating Impact;148 12.1;Introduction;148 12.2;Pedestrian Physical Dummy Models;148 12.3;Mathematical Models;149 12.4; Multibody Models; 152 12.5; Finite Element Models; 156 12.6; Application of Finite Element Pedestrian and Cyclist Models;163 12.7; Concluding Remarks;163 12.8; References;166 13; Chapter 9 Ground Contact Injuries; 170 1 EAN/ISBN: 9789048127436 Publisher(s): Springer Netherlands Discussed keywords: Fahrradunfall, Fugnger, Verkehrsunfall Format: ePub/PDF Author(s): Simms, Ciaran - Wood, Denis

DOWNLOAD HERE

Similar manuals: