ISO 13232-6:2005-12 (E)

Motorcycles - Test and analysis procedures for research evaluation of rider crash protective devices fitted to motorcycles - Part 6: Full-scale impact-test procedures

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 2

3 Definitions 2

4 Requirements 3
4.1 Opposing vehicle 3
4.2 Motorcycle 4
4.3 Dummy and instrumentation 4
4.4 Photographic equipment 5
4.5 Impact conditions 5
4.6 Additional test and analysis procedures for inflatable/triggered protective device 8
4.7 Test safety 8

5 Impact test methods 8
5.1 Impact conditions 8
5.2 Vehicle set up 8
5.3 Dummy set up 9
5.4 Stationary MC support 13
5.5 Camera set up 13
5.6 Pre-test measurements 14
5.7 Temperature soaking 14

6 Documentation and reporting 14

Annex A (normative) Procedure to set dummy joint tensions 15

Annex B (normative) Procedure for dummy pre-mount preparation 22

Annex C (normative) Procedure for positioning the dummy on the motorcycle 23

Annex D (normative) Procedure to install the helmet on the dummy and position the dummy head 27

Annex E (informative) Outline of additional general test and analysis procedures for inflatable/triggered protective devices 29

Figures Figure 1 -- Motorcycle overall length measurement bump 11

Figure 2 -- Head impactor target point and line-of-motion centre for sensor, data acquisition, and post processing verification 12

Figure A.1 -- Typical weight hanger 16

Figure A.2 -- Weight set 17

Figure A.3 -- Typical lower arm clamping fixture 18

Figure C.1 -- An example torso inclinometer 26

Figure D.1 -- Template of the helmet alignment tool 28

Figure F.1 -- Effect of joint tension on maximum head acceleration in car side 90° impact 44

Figure F.2 -- HyGe sled test results comparing arm joint tension effects on trajectory 47

Tables Table 1 -- OV contact point relative tolerances for the seven required impact configurations described in Table 2 -- OV contact point tolerances for other impact configurations 7

Table 3 -- OV ride heights 9

Table 4 -- Impactor characteristics for systems verification 10

Table A.1 -- Arm joint initial adjustments 19

Table A.2 -- Arm joint tension adjustments 20

Table A.3 -- Leg joint tension adjustments 21

Table B.1 -- Dummy limb pre-mount positions 22

Table F.1 -- EC, Japan and US vehicle data 34

Table F.2 -- Hybrid III dummy response sensitivity to temperature changes, based on Seiffert and Leyer, 1976 41

Table F.3 -- Dummy limb weights, distances used for joint tension calculations 48