

Crash Tests

New Car Safety

KIA RIO 5 DOOR HATCH

2001 on

Driver airbag

Overall Evaluation*



Overall score* 19.06 out of 34

* High risk of life threatening chest injury in side impact test.

Variant: 5 DR HATCH Eng: 4Cyl 1.5 litre.
Kerb weight: 1070 kg Category: SMALL CAR
Vehicles built: 5/01 and 5/01

Model History and Safety features

The KIA RIO was introduced in 2000.

A driver's airbag is standard equipment. A passenger airbag is not available.

The front seat belt buckles are mounted on the seats. This feature improves the fit of the seat belt.

OVERALL EVALUATION : 3 Stars

The KIA RIO 5 DOOR HATCH scored adequately in the offset crash test (score 7.062 out of 16). The passenger compartment appeared to be in reasonable shape but there were concerns about firewall intrusion and pedal movement. Protection from serious leg injury was poor for the driver.

The vehicle performed better in the side impact crash (score 12 out of 16) but there was a high risk of life threatening chest injury for the driver.

FRONTAL OFFSET CRASH TEST

The passenger compartment held its shape reasonably well in the offset crash test. However, the post-crash inspection revealed that there was substantial intrusion of the firewall into the passenger compartment. The vehicle came close to losing one point from the score for loss of structural integrity. The front part of the driver's floor was pushed rearwards 288mm. Intrusion was greater higher up on the firewall and resulted in the brake pedal moving rearwards by 339mm, to a position where it posed a hazard to the groin of the dummy. The dash moved 109mm towards the driver. The steering wheel hub moved rearwards 72mm, upwards 50mm and sideways 45mm. The front ("A") pillar moved 59mm rearwards. The roof was starting to buckle upwards above the driver and the width of the driver's doorway shortened by 58mm. All doors remained closed during the crash. After the crash high manual effort was required to open the driver's door.

The airbag cushioned the head of the driver. The steering wheel moved to the right near the peak of the crash and came close to affecting airbag performance but the driver's contact with the airbag was stable. During rebound the back of the driver's head hit the centre pillar. The driver's right knee hit steering column shroud, which did not provide adequate protection from the hard ignition switch barrel. The passenger's head came close to hitting its legs. The passenger's knee hit the glove box.

SIDE IMPACT CRASH TEST

The centre pillar and the side doors were pushed inwards substantially. The driver's seat was pushed sideways but the



Offset crash test at 64km/h

anchorages held. The driver's head hit the centre pillar then rebounded.

The vehicle was not eligible for a Pole Impact Test since it did not have head-protecting side airbags. This test can earn eligible vehicles an extra two points, giving a maximum possible overall score of 34 points.

INJURY MEASUREMENTS

Refer to the information sheet "How the test are done"	Offset Crash Test at 64km/h		Side Impact Crash Test at 50km/h
	Driver	Passn	Driver
Head HIC	329	393	246
Acceleration (g for 3ms)	44.6	50.4	64
Neck - Shear (kN)	0.4	1.12	-
Tension (kN)	1.66	2.18	-
Extension (Nm)	23	19.5	-
Chest Accln (g for 3ms)	35.7	32.2	-
Compression (mm)	35.98	33.03	42.18
Viscous criterion (m/s)	0.17	0.18	0.48
Abdomen - Force (kN)	-	-	0.94
Pelvis - Force (kN)	-	-	2.39
Upper legs Force			
Left (kN)	5.04	0.11	
Right (kN)	0.67	1.04	
Knee displ (mm)			
Left	0.33	2.38	
Right	2.67	1.94	
Lower legs Force			
Left (kN)	1.17	1.25	
Right (kN)	1.88	0.92	
Index (Upper/Low)			
Left	0.41/0.87	0.27/0.48	
Right	0.31/1.42	0.27/0.17	

Modifiers for offset test scores

Head		No penalty
Chest		No penalty
Upper leg	Variable & conc. loading	2 pt penalty L & R
Lower leg	Brake pedal upward	1 pt penalty
Foot score	Brake pedal rearward	Zero score

Pedestrian rating



13.36 points out of 36 (37.1%)

Child head impacts 6.17 pts; adult head impacts 6.00 pts; Upper leg 1.07 pts and lower leg impacts 0.12 pts.



Nov 2001

Published by
New Car Assessment Program
PO Box 1555
Canberra ACT Australia 2601
www.nrma.com.au/crashtests/
rio_01.doc issued 16-Nov-01