

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: \_\_\_\_\_

Category: \_\_\_\_\_

 Function:  Development  Validation

 Method:  Math. Based  Hardware

 Date: 21.12.2012
 Final

 Title: 'Rimblades' Alloy Wheel Protector
 Interim No.: MBK-12/1102
Safety Test
 Reissue Date of Reissue: \_\_\_\_\_

 To: Rimblades Limited

 Date of Request: 13.12.12

 From: Millbrook Proving Ground Ltd.

 Dates of Evaluation: 19.12.12 until 19.12.12
**Objective:**

To subject production 'Rimblades' alloy wheel protectors to high speed, pothole, medium/high vertical input and kerb strike procedures to test the safety and integrity of the design.

**Conclusions:**

The test was completed and all safety checks were passed.

The wheel protectors had maintained secure location on the test vehicle's wheels after every test procedure and no safety issues were identified.

**Recommendations:**

No recommendations included in this report.

Design evaluated	Rating:	Veh. Mileage:				
Part/Test Object Name(s):	Veh/Buck/PT/Part No./RPO:	Revision Date / Level:				
'Rimblades' alloy wheel protectors	Renault Sport Twingo RS133 Cup	N/A				
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="3" style="width: 40%; vertical-align: top;"> <b>Distribution:</b> Mr Darren Bowden Rimblades Ltd. Bridge House Bridge Street Taunton Somerset TA1 1UB                 </td> <td style="width: 60%;">                     Author: G. Millar <i>G. Millar</i> Date: 21.12.12                      Engineer - Vehicle Durability Engineering                 </td> </tr> <tr> <td>                     Approver: E. Rutherford <i>E. Rutherford</i> Date: 21.12.12                      Senior Engineer - Vehicle Durability Engineering                 </td> </tr> <tr> <td>                     Approver: D. Cock <i>D. Cock</i> Date: 21.12.12                      Head of Vehicle Durability                 </td> </tr> </table>			<b>Distribution:</b> Mr Darren Bowden Rimblades Ltd. Bridge House Bridge Street Taunton Somerset TA1 1UB	Author: G. Millar <i>G. Millar</i> Date: 21.12.12 Engineer - Vehicle Durability Engineering	Approver: E. Rutherford <i>E. Rutherford</i> Date: 21.12.12 Senior Engineer - Vehicle Durability Engineering	Approver: D. Cock <i>D. Cock</i> Date: 21.12.12 Head of Vehicle Durability
<b>Distribution:</b> Mr Darren Bowden Rimblades Ltd. Bridge House Bridge Street Taunton Somerset TA1 1UB	Author: G. Millar <i>G. Millar</i> Date: 21.12.12 Engineer - Vehicle Durability Engineering					
	Approver: E. Rutherford <i>E. Rutherford</i> Date: 21.12.12 Senior Engineer - Vehicle Durability Engineering					
	Approver: D. Cock <i>D. Cock</i> Date: 21.12.12 Head of Vehicle Durability					

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### INDEX

	Pages
Test Summary	1
Index	2
Test Procedure – High Speed Module	3
Test Procedure – Pothole Module	4
Test Procedure – Medium/High Vertical Input Module	5
Test Procedure – Kerb Strike Module	6

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### TEST PROCEDURE - High Speed Module

Module conducted on a 2 mile circumference circular banked track.

Test Instruction	Distance (miles)
Accelerate (moderate) to approx 30 mph	0.0
Accelerate (WOT) to approx 125 mph	0.3
Brake to approx 110 mph and accelerate (WOT) back to approx 125 mph	2.5
Brake to approx 110 mph and accelerate (WOT) back to approx 125 mph	7.0
Brake to approx 110 mph and accelerate (WOT) back to approx 125 mph	11.5
Brake to approx 110 mph and accelerate (WOT) back to approx 125 mph	16.0
Decelerate without brakes to approx 70 mph	20.5
Brake to approx 45 mph and exit facility	22.0

WOT: Wide Open Throttle



After the module, all wheel protectors were checked for security. If any wheel protector had detached from the adhesive bond or any other safety issues were noted, a verdict of failure would be recorded.

'Rimblades' wheel protectors safely passed and completed this module.

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### TEST PROCEDURE - Pothole Module

Module conducted on a level, cornered circuit equipped with two purpose-built potholes aligned with each side of the vehicle.

Test Instruction	Distance (miles)
Accelerate onto circuit facility and proceed to drive in accordance with a moderate driving style	0.0
Adjust vehicle speed to approx 25 mph and align vehicle's wheels with potholes	0.7
Continue at approx 25 mph through both sets of potholes	0.8
Accelerate and proceed to drive in accordance with a moderate driving style	0.9
Decelerate to approx 15 mph and exit facility	1.8



After the module, all wheel protectors were checked for security. If any wheel protector had detached from the adhesive bond or any other safety issues were noted, a verdict of failure would be recorded.

'Rimblades' wheel protectors safely passed and completed this module.

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### TEST PROCEDURE - Medium/High Vertical Input Module

Module conducted on a 1 mile length cobbled rough track (Belgian Pavé).

Test Instruction	Distance (miles)
Accelerate (moderate) onto Belgian Pavé to approx 30 mph	0.0
Continue at approx 30 mph on Belgian Pavé for the second of two laps	1.0
Brake to approx 15 mph and exit facility	2.0



After the module, all wheel protectors were checked for security. If any wheel protector had detached from the adhesive bond or any other safety issues were noted, a verdict of failure would be recorded.

'Rimblades' wheel protectors safely passed and completed this module.

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### TEST PROCEDURE - Kerb Strike Module

Module conducted on a purpose-built kerb facility. Kerbs measured approximately 100 mm in height.

	Distance (miles)
Align vehicle with 30° kerb facility ensuring right-hand wheels pass over central kerb island and left-hand wheels pass over 30° kerb island	0.0
Accelerate to and maintain a speed of approx 5 mph over kerbs	0.0
Exit facility and return at approx 35 mph	0.1
Align vehicle with 45° kerb facility ensuring left-hand wheels pass over central kerb island and right-hand wheels pass over 45° kerb island	0.4
Accelerate to and maintain a speed of approx 5 mph over kerbs	0.4
Exit facility and return at approx 35 mph	0.5
Align vehicle with 90° kerb facility in the centre of central kerb island, ensuring all wheels pass over the kerbs at 90°	0.8
Accelerate to and maintain a speed of approx 5 mph over kerbs	0.8
Exit facility	0.9



## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### RIMBLADES LTD



### 30° KERB

### RIMBLADES LTD



### 45° KERB

## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

### RIMBLADES LTD



45° KERB

### RIMBLADES LTD



90° KERB



## Confidential - Evaluation Report

Platform	Project/EWO No.	Requirement No.	Procedure No.	VPP/VIA/UPC	Model Year	Model No.	PER/Report No
N/A	N/A	N/A	RIM01	N/A	N/A	N/A	MBK12/1102

Int. Reg. No.: N/ACategory: N/A

After the module, all wheel protectors were checked for security. If any wheel protector had detached from the adhesive bond or any other safety issues were noted, a verdict of failure would be recorded.

'Rimblades' wheel protectors safely passed and completed this module.