

URGENT SAFETY ADVICE (ERA)



1. INCIDENT DESCRIPTION			
LEAD INSPECTOR	Andy Hall	CONTACT TEL. No.	01332 253306
INCIDENT REPORT No	665/02	DATE OF INCIDENT	05/06/13
INCIDENT NAME	Newcastle Central Station, Platform 10		
TYPE OF INCIDENT	Passenger trapped in train doors and dragged		
INCIDENT DESCRIPTION	<p>At about 17:00 hrs on 5 June 2013, a three-car, class 185, multiple unit was standing at platform 10 waiting to form train 1P59, the 17:02 hrs service from Newcastle to Manchester Airport. Shortly before the scheduled departure time, a passenger approached the train from the ticket office end (near field in the Figure 1), intending to board. The doors on the first (rear) coach were closed, but the rear set of doors on the middle coach was still open.</p> <p>These doors were closing as the passenger reached them, so she put her right hand between the door leaves expecting this to cause them to re-open. They did not; instead they closed around her right wrist and trapped it. The train then started to move forcing the passenger to walk and jog alongside.</p> <p>At this point, the train guard, who was leaning out of the rear cab window, could not see the trapped passenger due to the curvature of the platform. Passengers on board the train observed what had occurred and pulled the emergency door release which had the effect of applying the brakes. Another person standing on the platform shouted to the guard to stop the train and the guard applied the emergency brake.</p> <p>The train moved less than one coach length and had not picked up much speed, so the passenger was able to remain on her feet. She was shaken and suffered soft tissue damage to her wrist.</p>		
SUPPORTING REFERENCES	<p>Figure 1 Class 185 unit at Newcastle platform 10 Figure 2 Schematic drawing of Class 185 door seals Figure 3 Male door seal displaced Figure 4 A trapped wrist</p>		

2. URGENT SAFETY ADVICE	
USA DATE:	10/10/13
TITLE:	Class 185 doors
SYSTEM / EQUIPMENT:	Door system, door seals, sensitive edges.
SAFETY ISSUE DESCRIPTION:	<p>The Class 185 door leaves are fitted with sensitive edges in each door seal, as shown in Figure 2. In normal circumstances, when the doors are closing and a sensitive edge is compressed by an obstacle, the doors re-open fully. For the doors to close fully when no obstacle is present, the female sensitive edge must be disabled by the door control system, just before the two leaves touch, otherwise the doors would re-open when the two door seals come into contact. The male sensitive edge is not compressed when the two seals initially engage, and therefore is not disabled until the door leaves are detected as fully closed and locked. Once a set of doors are detected as closed and locked, they complete their part of the train safety circuit.</p> <p>However, in this incident a passenger's wrist became trapped between closing doors and could not be withdrawn because the shape and size of her hand, which is understood to have been holding a mobile phone, prevented it from being pulled between the closed doors. The conductor did not observe the trapped passenger on the curved platform and dispatched the train. The door control system allowed the train driver to then take power and move.</p>

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CIRCUMSTANCES:	<p>The RAIB is conducting a full investigation into the incident. As part of this investigation, the doors of the coach involved were tested with the assistance of the industry parties involved.</p> <p>Post-incident testing on the doors involved, confirmed that when a test piece specified by Railway Group Standard GM/RT 2473 (30 mm by 60 mm) was held in the doorway, long edge vertically and at a right angle to the door leaves, the obstacle detection system caused the closing doors to re-open in compliance with the Standard. The same occurred when the test is repeated with the smaller GM/RT 2473 test piece (10 mm by 50 mm) held long edge vertical and at a right angle to the door leaves. If this smaller test piece does become trapped, as explained below and allowed by the Standard, the force required to withdraw it is around 100 N.</p> <p>Further tests found that if a force is applied to the male seal at an angle to the motion of the door, the male door seal could be deflected towards the inside of the coach without compressing the associated sensitive edge, making it ineffective (see Figure 3). As the female sensitive edge is disabled before the seals fully engage, obstacles may then be trapped and not detected.</p> <p>Tests showed that this condition could be re-created with an adult wrist (see Figure 4), larger than both the wrist trapped in the incident and the test pieces specified in GM/RT 2473. The wrist is then firmly trapped and the train capable being driven away.</p> <p>Although it was not easy to re-create this condition, the actions needed to deflect the male seal were consistent with actions which might be taken by a passenger attempting to board while the doors are closing. This condition could be repeated on all 4 sets of doors on the vehicle involved in the incident.</p>		
CONSEQUENCES	Risk of injury and loss of life.		
REASONS FOR ISSUE AND SAFETY ADVICE:	<p>This Urgent Safety Advice is being issued to make Manufacturers, Railway Undertakings and Entities in Charge of Maintenance of passenger vehicles with electric sensitive door edges aware of the possibility of overcoming the protection provided by a sensitive edge system by means of angular deflection of a nosing rubber. Consideration should be given to any measures, whether technological and/or procedural, necessary to manage the associated risk to a tolerable level.</p>		
USA SIGN-OFF*			
INSPECTOR NAME:	Andrew Hall	CI / DCI NAME:	Simon French (Deputy Chief Inspector)
INSPECTOR SIGNATURE:	Electronic copy	CI / DCI SIGNATURE:	Electronic copy
DATE:	23/10/13	DATE:	23/10/13



Figure 1 Class 185 Unit standing at Newcastle Central Station Platform 10 (courtesy of First Transpennine Express)

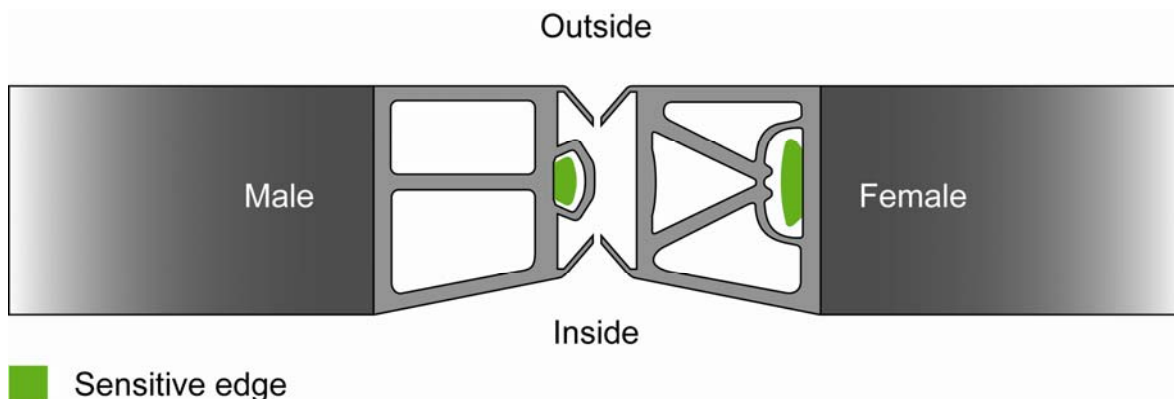


Figure 2 Schematic drawing of Class 185 door seals

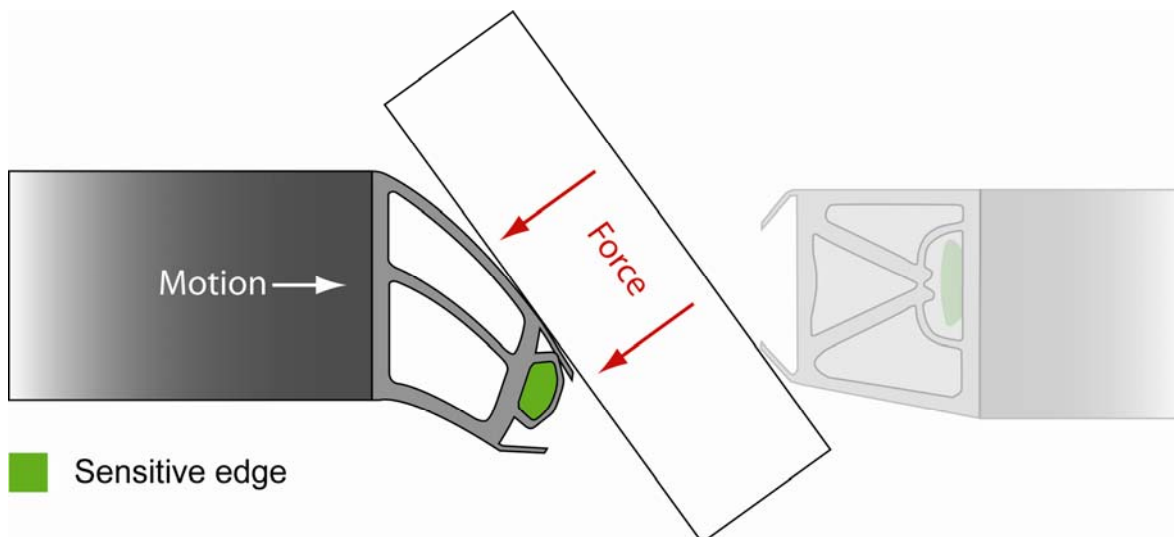


Figure 3 Male door seal displaced



*Figure 4
door*

Adult male wrist (approximately 45 mm by 70 mm) trapped in a door detected as closed and locked