Safety recommendation no. 120

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Number of the final report	2016011301
Safety deficit	On Wednesday, 13 January 2016 at approximately 17:29, a female passenger, whose arm had got trapped between the closed doors of a train operated by Sihltal Zürich Uetliberg Bahn (SZU) AG at the Zürich Schweighof stop, was pulled along by the departing train and seriously injured. The train driver was unaware of the incident and the train continued its journey. With the SZU's Be 556 vehicle fleet, the size of the rubber sections sealing the doors allows the doors to be closed and locked even when limbs are trapped, without the door's anti-trap facility registering the obstacle. With the Be 556 vehicle fleet, the final positions of doors and running boards are not registered correctly and, despite this, are reported to the train driver as locked. If, in case of failure, the doors are electrically and pneumatically disconnected, the doors and the running board need to be closed manually and locked mechanically using a square box spanner. With the Be 556 fleet, only one component needs to be locked mechanically and thereby also electrically to signal to the train driver that a door is completely locked. If a running board remains folded down and a door open, this goes undetected.
Safety recommendation	The FOT should ensure that the Be 556 fleet is equipped with an effective anti-trap facility which complies with approved technology and that the final positions of the doors and running boards are registered as being safe and definitely closed.
Addressees	Bundesamt für Verkehr
Stage of the implementation	Implemented. The recommended retrofitting of the Be 556 fleet vehicles to approved technology (SN EN 14752 standard) is only possible if the entire door drive and its control system are replaced. The Be 556 fleet is planned to be in operation until the middle of 2022, procuring the required replacement is already in planning. Today, the railcars are already in reduced operation (Monday to Friday during peak times). The SZU, based on the final report's results, identified immediate measures and implemented them by the end of 2017. These include amongst other things: – Attaching warning stickers; – Preventing the response time for successive reversion from increasing (basis for all other safety measures); – An active door-stop button on the centre boarding handrail also for forced closing; – Pressing of the door-stop button on the centre boarding handrail by a passenger is indicated on the door control light in the driver's cab.

Swiss Transportation Safety Investigation Board STSB
CH-3003 Berne
Tel.: +41 58 466 33 00, Fax.: +41 58 466 33 01
info@sust.admin.ch
www.sust.admin.ch

	Further measures are planned. The detailed engineering design has not been carried out yet. Commissioning and type testing of the first upgraded platform are scheduled for March 2018. At the same time, the engineering design work, the approval concept as well as the development of the verification and the upgrade documentation are to be carried out. On the basis of the event statistics, the FOT assesses the risk involved in the closing of the doors as low. It further states, that the measures proposed by the SZU significantly lower the risk once more.
Investigation report concerning the safety recommendation	Schlussbericht

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