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Hello Mr Kownacki,

In Finland bus fires have been in severe concern during the last couple of years. The amount of them have been high and stable in spite of increased information. No severe losses have occurred, but in december 2008 one was very close in town of Karkkila, about 100 km from Helsinki. It was winter, late afternoon (dark, no street lightning) when a bus full of tourists (65, age range 3 - 81 year) caught fire in electric center under instrument panel.

Unfortunately the investigation report is only in Finnish, but I'll try to explain key findings here. I am sure, that you are well aware of all these problems, but anyhow, I'll here send my greetings to the whole working group SDWEE and wish you to tackle successfully with this important issue.

The bus drive stopped, when he smelt smoke. He used driver's door and went out to check the situation. He shut the door, because avoiding danger for other traffic. Fire caused short-circuit and activated the centre-locking and loss of air pressure in the service door opening system. Also the lightning in passenger compartment died out during the first moments.

The front door locked mechanically by steel pin and was very hard to open. It couldn't be fully opened during the fire at all. The bus was high because of the big luggage compartment, so also the escape windows were placed high, about 2.5 m from ground level. And because, the bus was stopped on the side of way (typical narrow two-lane highway), the deep and graggy ditch made the escape jump even more higher. It was almost impossible to jump out without injuries, if one was even able to try. The pneumatic doors of the luggage compartment automatically opened, because the loss of pressure, and got up to cover side windows and made the escape route

further narrower and higher. Also there were problems with getting the windows brokened.

The emergency switches of the service doors (one in front and one in middle of the bus) were difficult to find and difficult to use. The front one was placed high (>170 cm), so it was difficult to come up to it. The middle door one was placed so that it was not possible to see it from gangway.

The investigation team checked later on different types of emergency switches of doors. The findings were very diverse, attached is couple of pictures of them. In one case for example a opened door of toilet may cover the switch totally. The way how switches should be use are different, and instructions to it are insufficient. In the case of mentioned fire accident, instructions were not in Finnish, because the bus was imported as used vehicle to Finland and first registered in the other country.

One common problem in emergency situation with bus full of passengers, partly with reduce mobility, is narrownes of a gangway.

It was almost a miracle, that only five passengers suffered severe injuries, seven light injuries and the rest 53 survived without hospitalization with only minor scratches etc. There were all the elements for same kind of disaster as in Germany 2008.

Of course there were many other findings of the investigation team concerning reasons and spreading of fire, first fire-fighting equipment, maintenance of buses, education and information etc.

I wish luck and wise decisions for the whole SDWEE group;

if you have any further questions so do not hesitate to contact me.

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