

The Effect Of Type III Hatch Placement On Evacuation From Smaller Transport Aircraft

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Introduction: Accident reports and experimental research have shown that Type III hatches have been disposed in a range of locations. Locations have included outside the cabin and inside the cabin on the floor in the exit row, on the seats in the exit row and in the main aisle. Inappropriate placement of the Type III hatch may result in a blockage to the egress route and a potential impediment to those who need to evacuate through the exit. The aim of the research was to investigate the potential influence of the placement of the Type III hatch on passenger evacuation from a smaller transport aircraft. **Method:** The cabin simulator was modified to represent a number of internal features associated with smaller transport aircraft. One independent variable was tested – the placement of the Type III hatch. There were three experimental conditions - no hatch inside the cabin (i.e. to simulate hatch disposal outside the aircraft), the hatch placed vertically in the exit seat row and the hatch placed horizontally on the floor in the exit row. Twenty four groups of up to 18 passengers were recruited. A collaborative methodology was used, although a degree of urgency was added by offering a group bonus payable to everyone in the group, if all participants evacuated the cabin within a time-limit across all trials in the session. **Results:** The results from the trials involving naïve participants indicated that Type III hatch placement had a statistically significant effect on passenger evacuation rates (passengers per minute). The rate at which participants evacuated was significantly higher when there was no hatch in the cabin, compared to when the hatch was placed either vertically or horizontally in the cabin. In addition, the evacuation rate was significantly higher when the hatch was placed horizontally in the cabin, compared to when it was placed vertically in the cabin. **Discussion:** This result highlights the importance of ensuring that hatch operators clearly understand the task requirements and are able to dispose of the hatch into an appropriate location so that it does not impede egress.