

10/11/70  
11-50  
NOT 705  
General Motors Corporation (GMC), in a letter dated 11-50-70, advised that they had conducted a proposed test which conformed to the requirements of the Department of Transportation. The regulations, however, will require the manufacturer to conduct the tests.

It is also noted that the retention testing procedures provided are based upon the application of pressure to the window of the bus, and do not include forces or deflections of the window frames which may tend to unbalance the forces or cause the deflection of the window frames as a result of an accident or other occurrence. Accident reports which have been reviewed by the National Board, do not indicate definitively whether the window openings which have occurred, were caused by such deflection or by pressure of the frame of the bus occurring against the windows. However, the Board has had one filed bus case in which bus windows on one side were broken before the bus was subjected to any crash impact. This occurred when the bus was driven off the pavement onto a sloping shoulder in such a way that the bus was supported momentarily on the left front and right rear wheels. It is noted that with the increased use of picture windows in buses, the size of the window openings has been increasing. Conceivably, this could make the frames increasingly sensitive to being opened by large-scale distortion of the structure.

The National Transportation Safety Board recommends to the National Highway Traffic Safety Administration:

- 1) That those portions of the proposed motor vehicle standard for bus window retention and release which relate solely to the prevention of unwanted window opening and passenger ejection be retained in the final standard adopted.
- 2) That those portions of the proposed motor vehicle safety standard for bus window retention and release which deal with access to the windows and other aspects of escape be replaced by a new performance standard based upon demonstration testing of escape. As recommended in earlier Safety Board reports, such demonstration tests should include the full range of passenger body types, positions in which buses may rest following an accident, and the range of environmental conditions actually met in service.
- 3) That tests already conducted by bus manufacturers involving bus structural distortions resulting from road loads, such as encountered in running off the road, be reviewed, and, if indicated, additional tests to guard against inadvertent opening of the windows by structural deflections be placed on the requirement.

Sincerely,  
Original signed by  
John H. Reed

John H. Reed  
Chairman

cc: NC-1(2), NI-2, NI-3, NI-4, NI-5, NE-1, NG-1, NP-1, NS-1, NS-2,  
NE-51, NE-515, NS-10(971Z117), NOTATION NO. 705-A, Approved by  
the Board November 10, 1971. Hoffmann:alw:NS-10:10/11/71