Motor Vehicle Fire Research Institute
Awarded Contracts

Title: Analysis of Data Systems to Assess Possibilities for Evaluating Egress and Fire Penetration Times

Contractor: George Bahouth

Duration: September 1, 2002 – March 31, 2003

Purpose:

Earlier research conducted under the GM/DoT C/K Pickup Settlement Agreement found that technology exists to delay the penetration of fire into the occupant compartment of vehicles; however, the value of providing additional time was not determined. MVFRI is interested in exploring this research area. In particular, it is desired to determine the value of increased fire protection time and reduced egress time.

There are a number of time variables that influence the benefit of fire safety improvements. These include:

1. Time from crash to crash notification or reporting
2. Rescue time arrival – notification time to arrival on scene (police, EMS, Fire)
3. Egress time – time required to extract crash victim
4. Return to hospital time – ER arrival

In crashes than could potentially have fire present, it is of interest to determine the value of improving egress and fire penetration times to enhancing the survival of the occupants. Several conditions need to be investigated where a fire may be present, which include:

- no restriction to egress, no physical restriction to occupants;
- restriction to egress, no physical restriction to occupants;
- no restriction to egress, physical restriction to occupants;
- restriction to egress, physical restriction to occupants;

Other variables to assess the above include:

1. Crash severity
2. Degree of entrapment
3. Presence of fire (and type – under-hood, fuel fed, pool)
4. Degree of injury, and time criticality of injury

Under this project, the contractor will examine databases that may be suitable to assess the benefits of improved egress and fire penetration times. Preliminary analyses will be conducted. It should be noted that future vehicles are likely to be equipped with Automatic Crash Notification. Consequently, notification of the crash will be instantaneous and the time may be accurately documented. This improved feature reduces the need to document present day notification times. The accuracy of this data is questionable, and its utility is marginal, so

minimum effort will be directed on this issue. A written report that summarizes the data bases available and provides a recommended approach for conducting an analysis of the benefits will be provided.