Rollovers accounted for about 35 percent of left front door openings, 40 percent of right front door openings, and 42 percent of back door openings. Finally, the data showed that the most common damage associated with door openings was damage to the latch/ striker assemblies: 60 percent for left front door openings, 50 percent for right front door openings, and 71 percent for back door openings.

(c) Notice of Proposed Rulemaking

(1) Rationale

In view of the number of fatalities and injuries resulting from back door ejections, NHTSA published a Notice of proposed rulemaking (NPRM) on August 30, 1994, proposing to extend the requirements of Standard No. 206 to the back doors of passenger cars and MPVs with a GVWR of 4,536 kg (10,000 pounds) or less, including hatchbacks, passenger vans, station wagons, and sport utility vehicles. In addition, the agency proposed certain modifications to the test procedures applicable to back doors.

Based on agency data, NHTSA believes that its side door latch requirements for passenger cars reduce the risk of ejection in rollover crashes by 15 percent, thereby saving an estimated 400 lives per year. Thus, although the agency has acknowledged that increased use of safety belts is effective in reducing vehicle ejections, extending Standard No. 206 requirements to back doors would help reduce injuries and fatalities resulting from back door ejections of unbelted occupants. Further, because of the increasing popularity of vehicles equipped with back doors, especially passenger vans, this safety problem may become more serious unless preventive measures are taken.

As noted in the NPRM, there is a greater variety of designs of back doors than of side doors. While most side doors open to the side and have hinges on their front and latches on the rear, back doors may open upward, rearward or to the side, and have latches and hinges on the top, bottom or side. In addition, back doors may be vertical or sloped when viewed from the side.

Nevertheless, the NPRM pointed out four basic designs of back doors typically used in production vehicles:

(i) Door opens upward, with a single latch (or striker) centered at the bottom of the door with a single striker (or latch) on the back door sill or floor panel;

(ii) Door opens sideways, with latch on the door and striker on the door frame, such as back doors on large station wagons;

(iii) Split doors with top, typically of glass, opening upward and bottom tailgate opening downward, with striker at the bottom of the top door and latches or rod/pin connectors at the top and sides of the tailgate, such as back doors of sport utility vehicles; and

(iv) Double cargo-type doors, a 2-part door that latches to itself with one latch located at the center between the doors, such as the back doors of some cargo vans.

Because of the wide variety of back door designs and the variation in latch and hinge orientations in relation to the vehicle, NHTSA indicated in the NPRM that directions in which test loads are applied should be specified in relation to the orientation of each latch and hinge. The agency further indicated that latches and hinges on doors that open upward should meet load requirements in 3 rather than in 2 directions. For those reasons, NHTSA proposed to modify the test procedures applicable to back door latches and hinges, as discussed below.

In addition to proposing modifications to the existing latch/ striker test procedures, the agency announced that it was considering applying the secondary latched position requirement currently applicable to side door latches to some or all back door latches. The agency therefore requested comments on what types of back doors should be included or excluded from this requirement and why.

(2) Proposed Test Procedures for Back Door Latches

(i) Load Test One. For back doors, NHTSA proposed basically the same test as the longitudinal test, that is, applying a load perpendicular to the face of the latch, utilizing the same test loads. Rather than refer to the test as "longitudinal load," however, NHTSA proposed to refer to it as "Load Test One," since most back door latches are oriented so that a load applied parallel to the vehicle longitudinal centerline would not be equivalent to the longitudinal test of side door latches.

(ii) Load Test Two. The agency proposed to apply to back doors a test corresponding to the transverse load test for side doors, but rather than apply the load in the direction of door opening, NHTSA would apply the load in the direction of the fork-bolt opening and parallel to the plane of the latch face. The agency proposed to use the same test loads as in the transverse load test, but would refer to this test as "Load Test Two."

(iii) Load Test Three. NHTSA proposed to require latches on doors that open upward to meet load requirements in a third direction that is orthogonal, i.e. perpendicular, to both of the directions in which loads are applied in Load Tests One and Two. The set-up for Load Tests Two and Three would be identical, except that in Load Test Three, the latch would be mounted in a position perpendicular to those in Load Tests One and Two. The agency requested comments on whether a load of 11,000 Newtons (2,500 pounds) or 8,900 Newtons (2,000 pounds) should apply to Load Test Three.

(iv) Inertia load. In view of the many orientations of back doors, NHTSA proposed that back door latches meet the 30g inertia load requirement in any direction, as opposed to a limited number of directions for side door latches. The agency requested comments on the appropriateness of that proposal.

(3) Proposed Test Procedures for Back Door Hinges

The agency stated that the same considerations concerning load orientations apply to back door hinges as to back door latches. Accordingly, the agency proposed the following 3 load tests for hinges:

(i) Load Test One. Load is applied perpendicular to the hinge face plate;

(ii) Load Test Two. Load is applied perpendicular to the axis of the hinge pin and parallel to the hinge face plate; and

(iii) Load Test Three. In this test, which is applicable to the hinges on doors that open upward, the load is applied parallel to the axis of the hinge pin.

The agency requested comments whether the load for the three hinge tests should be 8,900 Newtons (2,000 pounds) or 11,000 Newtons (2,500 pounds).

(4) Back Door Locks

The agency stated that it was considering extending the door lock requirements of Standard No. 206 to some or all back door locks, and requested comments on that issue.

(5) Additional Considerations

The agency requested comments on the following issues:

(i) To what extent should full versus abbreviated requirements apply to back doors?

(ii) Are the proposed test requirements clear and appropriate for all back doors?