1. Small business—a for-profit concern that provides a service or a concern not engaged in manufacturing with average gross receipts of $5 million or less over its last 3 completed fiscal years;

2. Manufacturing industry—a manufacturing concern with an average number of 500 or fewer employees based upon employment during each pay period for the preceding 12 calendar months;

3. Small organization—a not-for-profit organization which is independently owned and operated and has annual gross receipts of $5 million or less;

4. Small governmental jurisdiction—a government of a city, county, town, township, village, school district or special district with a population of less than 50,000;

5. Small educational institution—an educational institution supported by a qualifying small governmental jurisdiction, or one that is not state or publicly supported and has 500 or fewer employees.[1]

NRC Small Entity Fees

The NRC has established two tiers of small entity fees for licensees that qualify under the NRC's size standards. Currently, these fees are as follows:

	Maximum annual fee per licensed category
Small Business Not Engaged in Manufacturing and Small Not-For Profit Organizations (Gross Annual Receipts):	
$350,000 to $5 million	$1,800
Less than $350,000	400
Manufacturing entities that have an average of 500 employees or less:	
35 to 500 employees	1,800
Less than 35 employees	400
Small Governmental Jurisdictions (Including publicly supported educational institutions) (Population):	
20,000 to 50,000	1,800
Less than 20,000	400
Educational Institutions that are not State or Publicly Supported, and have 500 Employees or Less:	
35 to 500 employees	1,800
Less than 35 employees	400

To pay a reduced annual fee, a licensee must use NRC Form 526, enclosed with the fee bill, to certify that it meets NRC's size standards for a small entity. About 1,400 licensees certify each year that they qualify as a small entity under the NRC size standards and pay a reduced annual fee.

[1] An educational institution referred to in the size standards is an entity whose primary function is education, whose programs are accredited by a nationally recognized accrediting agency or association, who is legally authorized to provide a program of organized instruction or study, who provides an educational program for which it awards academic degrees, and whose educational programs are available to the public.

Approximately 900 licensees pay the small entity fee of $1,800 while 500 licensees pay the lower-tier small entity fee of $400.

Instructions for Completing NRC Form 526

1. File a separate NRC Form 526 for each annual fee invoice received.

2. Complete all items on NRC Form 526 as follows:

a. The license number and invoice number must be entered exactly as they appear on the annual fee invoice.

b. The Standard Industrial Classification (SIC) Code should be entered if it is known.

c. The licensee's name and address must be entered as they appear on the invoice. Name and/or address changes for billing purposes must be annotated on the invoice. Correcting the name and/or address on NRC Form 526 or on the invoice does not constitute a request to amend the license. Any request to amend a license are to be submitted to the respective licensing staffs in the NRC Regional or Headquarters Offices.

d. Check the appropriate size standard under which the licensee qualifies as a small entity. Check one box only. Note the following:

(1) The size standards apply to the licensee, not the individual authorized users listed in the license.

(2) Gross annual receipts as used in the size standards includes all revenue in whatever form received or accrued from whatever sources, not solely receipts from licensed activities.

(3) A licensee who is a subsidiary of a large entity does not qualify as a small entity.

(4) The owner of the entity, or an official empowered to act on behalf of the entity, must sign and date the small entity certification.

3. The NRC sends invoices to its licensees for the full annual fee, even though some entities qualify for reduced fees as a small entity. Licensees who qualify as a small entity and file NRC Form 526, which certifies eligibility for small entity fees may pay the reduced fee, which for a full year is either $1,800 or $400, for each fee category shown on the invoice depending on the size of the entity. Licensees granted a license during the first six months of the fiscal year and licensees who file for termination or for a possession only license and permanently cease licensed activities during the first six months of the fiscal year pay only 50 percent of the annual fee for that year. Such an invoice states the ''Amount Billed Represents 50% Proration.'' This means the amount due from a small entity is not the prorated amount shown on the invoice but rather one-half of the maximum annual fee shown on NRC Form 526 for the size standard under which the licensee qualifies resulting in a fee of (either $900 or $200) for each fee category billed instead of the full annual fee of $1,800 or $400.

4. A new small entity form is required to be filed with the NRC each fiscal year in order to qualify for reduced fees for that fiscal year. Because a licensee's ''size,'' or the size standards, may change from year to year, the invoice reflects the full fee and a new form must be completed and returned for the fee to be reduced to the small entity fee. LICENSEES WILL NOT BE ISSUED A NEW INVOICE FOR THE REDUCED AMOUNT. The completed form, the payment of the appropriate small entity fee, and the ''Payment Copy'' of the invoice should be mailed to the U.S. Nuclear Regulatory Commission, License Fee and Accounts Receivable Branch, P.O. Box 954514, St. Louis, MO 63195–4514.

5. Questions regarding fee bills may be posed orally or in writing. Please call the licensing fee staff at 301–415–7554 or write to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Office of the Chief Financial Officer.

[FR Doc. 97–4704 Filed 2–26–97; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 94–97; Notice 2]

RIN 2127–AF40

Federal Motor Vehicle Safety Standards; Roof Crush Resistance

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes to revise the test procedures in Standard No. 216, *Roof Crush Resistance*, to make them more suitable to testing vehicles with highly sloped roofs or raised roofs. The current test procedure is intended to test the strength of the roof over the driver. It involves lowering a large test plate, inclined forward at a five degree angle, to an initial contact point near the leading edge of the roof. However, when the procedure is performed on certain rounded, aerodynamically-shaped roofs that may themselves slope at more than five degrees, small differences in test plate angle result in considerable variability in the location of the initial contact point, thus reducing the repeatability of the test results. Similarly, for vehicles with raised, irregularly shaped roofs (such as some converted vans), the initial contact point may not be above the driver, but on the raised rear portion of the roof, behind the driver.

This proposal addresses these problems by specifying the use of a smaller test plate for use on vehicles on which the use of the current larger test plate would result in an initial contact point behind the driver. The rearward edge of the smaller test plate will be

over the front occupant compartment, so the initial contact point will be in that area.

This proposal also changes the test procedure to align either test plate with the front of the roof, thus ensuring engagement of the vehicle's A-pillar.

DATES: *Comment Date:* Comments must be received by April 28, 1997.

If adopted, the proposed amendments would become effective, and compliance required, 180 days following publication of the final rule.

ADDRESSES: Comments should refer to the docket and notice number of this notice and be submitted to: Docket Section, Room 5109, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590. (Docket Room hours are 9:30 a.m.–4 p.m., Monday through Friday.)

FOR FURTHER INFORMATION CONTACT: The following persons by mail at the National Highway Traffic Safety Administration, 400 Seventh Street, S.W., Washington, DC 20590:

For non-legal issues:

Dr. William R. S. Fan, Office of Crashworthiness Standards, NPS–11, telephone (202) 366–4922, facsimile (202) 366–4329, electronic mail ''bfan@nhtsa.dot.gov''.

For legal issues:

Mr. Paul Atelsek, Office of the Chief Counsel, NCC–20, telephone (202) 366–2992, facsimile (202) 366–3820, electronic mail ''patelsek@nhtsa.dot.gov''.

Comments on this proposal must be sent to the docket and not to the contact persons.

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I. Background

Federal Motor Vehicle Safety Standard (FMVSS) No. 216, *Roof Crush Resistance,* is intended to assure that vehicles have sufficient structural strength in the passenger compartment roof to resist crushing during rollover crashes. The test procedure involves securing the vehicle on a rigid horizontal surface, placing a test plate on the roof, and applying 1.5 times the unloaded vehicle weight (up to a maximum of 22,240 N, or 5,000 pounds, for passenger cars) to the test plate. The vehicle passes if the roof prevents the test plate from moving downward more than 127 mm (5 inches).

The test procedure is designed to test the primary structural member supporting the roof over the front seats. That member is generally the A-pillar.

In order to test the A-pillar, the test plate, which is 762 mm (30 inches) wide by 1,829 mm (72 inches) long, is oriented in a way so that the initial contact point is at the top of the A-pillar. Its 1,829 mm dimension is parallel to the vertical plane through the longitudinal centerline of the vehicle, and tilted forward at a five degree angle. Its 762 mm dimension is tilted outward at a 25 degree angle so that its outboard side is lower than its inboard side. So oriented, the test plate is lowered until it contacts the vehicle. After the initial contact point is determined, the test plate is moved, maintaining its orientation, so that the initial contact point touches the underside of the test plate along the test plate's longitudinal centerline, 254 mm (10 inches) rearward of the centerline's forwardmost point. The test plate is then pushed downward in a direction perpendicular to its lower surface until a load of 1.5 times the unloaded vehicle weight (up to a maximum of 22,240 N, or 5,000 pounds, for a passenger car) has been applied.

Although, as noted above, the intent underlying this test procedure is to load the area at the top of the A-pillar, the combined effect of the test plate and procedures and certain roof configurations may be the testing of other areas of the roof. Neither NHTSA nor the industry envisioned these configurations when the current test procedure was promulgated. In response to the problems created by these configurations, two members of the industry have petitioned the agency to modify the test procedure.

II. Petitions

A. Recreation Vehicle Industry Association (RVIA)

RVIA, which represents small business van conversion manufacturers, is concerned that contoured or raised roof structures on certain second stage van conversions cannot be tested using the current test procedure. With only a five degree incline of the test plate, the initial contact point at the leading edge of the roof is supposed to be 254 mm (10 inches) behind the forwardmost edge of the test plate. However, for some raised roofs, the initial contact point will be several inches behind the leading edge of the roof due to the roof geometry. This results in testing the raised roof structure (which is generally relatively weak) instead of the A-pillar over the front seats. Vehicles with these problem configurations include raised roof conversions of the Plymouth Voyager, Dodge Caravan, Chrysler Town & Country, Chevrolet Astro, and GMC Safari minivans.

To address this situation, RVIA petitioned NHTSA to allow vans, motor homes and other multipurpose passenger vehicles, trucks, and buses that have raised roofs, to be tested in accordance with the test procedures in Standard No. 220, *School Bus Rollover Protection.* Standard No. 220 uses a larger test plate and distributes the same load evenly over the entire surface of the roof and all its supporting pillars, rather than concentrating the load on either side of the roof over the front seat.

In making this request, RVIA reasoned that, since the modified vehicles would have met Standard No. 216 requirements prior to modification of their roofs, the A-Pillar strength would have been demonstrated. The Standard No. 220 test procedure could then be used to test the strength of the entire modified vehicle roof. There would be no need to repeat the Standard No. 216 test.

B. Ford Petition

Ford is concerned that some Ford models with aerodynamic, rounded, roof designs result in initial contact points that are so far back on the roof that the front edge of the test plate is several inches behind the A-pillar when it is positioned as specified in the Standard. This occurs because the roofs slope longitudinally at an angle greater

than 5 degrees at their leading edge. Consequently, the roofs are loaded somewhere behind the A-pillar.

In addition, Ford states that the long sloping roofs make repeatable testing difficult. The initial contact point is highly variable and dependent on the specific roof design. The initial contact point can move several inches if the plate angle or the level of the floor on which the test vehicle is placed are off by as little as one degree. This could lead to substantial differences in test results.

Ford believes that the test procedures are contradictory. S6.2 of the standard says to ''[o]rient the test device as shown in Figure 1 * * *'', which shows the test plate in contact with the front corner of the roof, inclined longitudinally at an angle of 5 degrees. At the same time, S6.2(d) of the rule specifies that the initial contact point be 254 mm (10 inches) from the front edge of the test plate. Thus, there is a conflict between the specifications in S6.2(d) and Figure 1 in the regulatory text for certain vehicles with highly sloped roofs.

Ford believes NHTSA has not resolved this apparent conflict in a way that is in accordance with the initial intent underlying the standard, which is to load the front corner of the roof. NHTSA issued an October 3, 1980 letter of interpretation stating that the test plate should be positioned in accordance with the language of the regulatory text of S6.2(b), even if the leading edge of the test plate will not be forward of the A-pillar and the roof's leading edge, as depicted in the figure. Ford has followed this interpretation even though it believes that this approach does not test the actual resistance of the roof to being crushed in crashes.

Ford petitioned NHTSA to amend Standard No. 216 to specify that the leading edge of the test plate should always be one inch forward of the leading edge of the roof. To accomplish this, Ford suggested the following language to replace S6.2(d):

> The initial contact point, or center of the initial contact area, is on the longitudinal centerline of the device. A plane perpendicular to the lower surface of the test device and 25 mm rearward of the front edge of the lower surface passes through the rearmost point of the opening in the body structure for the windshield.

Ford also petitioned NHTSA to amend the test procedure to specify that all vehicles be tested with the body sills, rather than the chassis, mounted on the rigid surface, and that all roof rack components that could interfere with initial contact between the test plate and the roof be removed prior to testing.

III. Agency Request for Comments

In a request for comments published December 27, 1994, NHTSA granted the RVIA and Ford petitions, but expressed reservations about the solutions suggested by the petitioners. The details of NHTSA's reaction to the petitions can be seen in that 1994 document (59 FR 66504), and will merely be summarized here.

In response to the RVIA's petition to use the test procedures of Standard No. 220 for raised roof vehicles, NHTSA expressed concern that adopting RVIA's approach would trade off increased roof crush protection for rear seat occupants with diminished protection for front seat occupants. Because most deaths and injuries in these vehicles are to front seat occupants, and RVIA submitted no data to quantify the trade-offs in protection, NHTSA wanted to conduct research to examine them. In addition, NHTSA was concerned that the roof strength in the area of the A-pillars might be affected by raised roof conversions, thus compromising the basis for the original manufacturer's certification under Standard No. 216.

In response to Ford's petition to position the leading edge of the test plate one inch forward of the leading edge of the roof, NHTSA observed that consistent positioning of the test plate over the front of the roof would not ensure that area of the roof would be tested. This would occur because Ford's suggested language retained the 5 degree angle of tilt (a detailed explanation is given below). In addition, NHTSA was concerned that Ford's suggested positioning could reduce the stringency of the test for some vehicles.

The agency requested public comment on the changes requested in the petitions. Specifically, NHTSA requested relevant test data, and recommendations for other ways to address aerodynamically sloped and raised roofs, including changes in the orientation, size, and shape of the test plate.

IV. Comments on the Petitions

A total of 11 comments were received by the agency in response to the notice. Five passenger vehicle manufacturers (Ford, General Motors, Mercedes-Benz, Volkswagen, and Volvo), a second-stage manufacturer (S & S Coach Company), two trade associations (American Automobile Manufacturers Association (AAMA) and RVIA), a group of concerned citizens, and two safety organizations (Advocates for Highway and Auto Safety (Advocates) and MCR/LRI Inc. Liability Research Group (MCR/LRI Inc.)) submitted comments. These comments are summarized below, grouped according to the similarity of their positions on the issues.

A. Comments on the RVIA Petition and the Suitability of Standard No. 220 Test Procedures for Raised Roof Vehicles

1. Passenger Vehicle Manufacturers and AAMA

Ford did not support or oppose the RVIA recommendation, but it did comment on the appropriateness of Standard No. 216 and 220 test procedures for testing the raised roofs of conversion vans. Ford stated that Standard No. 220 may be more practicable for the low volume roof modifications addressed by RVIA. In addition, Ford expressed concern that van converters who supply vehicles for drivers and passengers with disabilities may not be able to certify compliance with Standard No. 216. According to Ford, the simplified test for school buses in Standard No. 220 may make certification more practicable for those converters.

Some commenters suggested that, rather than adopt a separate test procedure for raised roof vehicles, the agency could modify the Standard No. 216 test procedure to make it more suitable for these vehicles. Ford suggested increasing the allowable deflection to reflect the added space between the raised roof and occupants in vehicles with raised roofs. Volkswagen agreed that raised roof vehicles should be tested using Standard No. 216 rather than Standard No. 220. It also suggested three different methods for modifying the procedures to accommodate raised roof vehicles: (1) test with the raised roof removed and the test plate applied to the supporting structure, (2) exclude the measured roof crush of the raised roof from the 127 mm (5 inch) displacement, and (3) measure the 127 mm (5 inch) displacement into the passenger compartment starting from where the test plate reaches the inner roof.

2. Second Stage Manufacturers and RVIA

RVIA commented that several states require Standard No. 220-type testing to certify ambulance conversions purchased and licensed by their states. They enclosed a November 1, 1994 document from the General Services Administration (Federal Specifications for Ambulances, KKK–A–1822D) specifying this test for use by all Federal agencies when procuring ambulances.

In response to the agency's request for data to show that RVIA's suggested amendment would not reduce the stringency of the test, and that A-pillar strength is retained after the roof is cut out during a conversion, RVIA commented that they were in the midst of conducting new tests and would submit their results to the docket. The agency has not yet received any data from RVIA, but will consider these data if and when they become available.

S&S Coach Company, a final stage manufacturer of funeral coaches, submitted a petition for consideration to exclude from Standard No 216 funeral coaches having a gross vehicle weight rating (GVWR) of 2,722 kilograms (6000 pounds) or less. They stated that the current test procedure makes it impossible to test the front edge of the roof. They believe that these vehicles have very little risk of rollover because they are produced in small numbers, are primarily in urban use, and operate at slow speeds.

3. Safety Advocacy Groups

MCR/LRI Inc. stated that the petitioners should provide data to show the maximum force experienced by the roof in realistic, injury-producing rollovers in their vehicles. In addition, before any amendment is made in the current requirements of Standard No. 216, MCR/LRI Inc. said that RVIA should provide data to show that the suggested amendment does not degrade the rollover safety of their vehicles.

Advocates stated that the NHTSA should reject RVIA's request for exclusion from the test requirements of Standard No. 216. Advocates agrees with NHTSA's concerns that compliance before the roof is cut out does not necessarily mean that the original roof would still comply after modification, and that the Standard No. 220 procedures do not assure frontal compartment protection.

Advocates urged NHTSA to require raised roof vehicles to meet the Standard No. 220 requirements, in addition to those of Standard No. 216, because raised roof vehicles can carry a full complement of passengers in the front and rear compartments, necessitating protection for both areas.

B. Comments on the Ford Petition, and Test Plate Orientation and Size

1. Passenger Vehicle Manufacturers and AAMA

Ford buttressed its petition by presenting test results from three test facilities with which they contracted to test four 1994 Ford Taurus sedans using the current Standard No. 216 test procedure. The plate placement was highly variable, resulting in different roof strength measurements for each Taurus tested at the different test facilities. Data on the variability of plate placement were submitted to the docket and Ford stated that it would submit its test results after analyzing the data.

GM, Volvo, and Mercedes-Benz generally supported the amendment suggested by Ford to the Standard No. 216 procedure, while Volkswagen remained neutral. Although Ford's test procedure does not provide for the consistent placement of the plate and the same contact point, GM believed that in most cases, the test plate would contact the front portion of the roof prior to reaching 127 mm (5 inches) of crush. In addition, GM stated that Ford's suggested test plate positioning would eliminate an ''edge condition,'' which can result in concentrated loading over a small area of the roof.

There was some disagreement among the manufacturers over whether NHTSA should consider changing test plate angles, although they all agreed that data would be needed to support such a change. GM suggested that, if NHTSA's test procedure is intended to simulate loading in rollover crashes, the agency should consider changes in the plate angles to accommodate the range of vehicle designs. GM supports a NHTSA study of the appropriateness of the current test plate angles.

Ford opposed changing the test plate size, shape, or angle. Ford stated that crash data should be used to verify that any new angles are more representative of real-world rollover crashes. Ford also stated that the current test plate size adequately represents the ground surface contact area in rollover accidents, and reducing that size would probably require strengthening of long roofs, due to the more concentrated loading.

Mercedes-Benz also opposed test plate angle changes. Assuming that NHTSA might propose higher plate angles, Mercedes-Benz stated that changing the direction of the loading might make the test more stringent, necessitating a redesign of the roof pillars to respond to the more horizontal loading.

Although it is not directly relevant to its petition, Ford also believes some methods used by test facilities to tie-down vehicles pre-stress the pillars and the roof and reduce the measured roof strength. As more data become available, Ford plans to direct the agency's attention to further changes needed in the Standard No. 216 test procedure.

AAMA also supported the Ford suggestion, but suggested a slight change in the language of Ford's suggested amendment. It thought that some persons might misinterpret Ford's phrase ''opening in the body structure for the windshield'' to mean the edge of the depression in the metal roof panels into which the edge of the windshield is mounted. Ford confirmed to the AAMA that it intended to refer to the edge of the metal roof panels and windshield, AAMA suggested the following language for the test procedure in Standard 216 for S6.2(d):

> The initial contact point, or center of the initial contact area, is on the longitudinal centerline of the device. A line normal to the lower surface of the test device and through a point on its longitudinal centerline and 25 mm rearward of the front edge passes through the rear edge of the visible exterior surface of the windshield.

Volkswagen neither supported nor opposed the amendment suggested by Ford, because it had experienced no difficulty with the procedures. However, it urged that any amendment of Standard No. 216 be flexible and not limited in its suitability to test different vehicle roof configurations.

Ford and the AAMA both urged adoption of the Ford suggestion in order to achieve harmonization between Standard No. 216 and Transport Canada's CMVSS No. 216.

Five consumers commented that the Ford suggestion would provide better protection for all passengers and drivers.

2. Safety Advocacy Groups

MCR/LRI Inc. stated that the petitioners should submit data to show that the force on the roof in their amendment is realistic and that there would not be a degradation in the rollover safety of new vehicles if the Ford recommendation were accepted.

MCR/LRI Inc. also stated that minor amendments to Standard No. 216 are unlikely to achieve an adequate level of roof crush protection. Their analysis of 50 rollover accident cases showed that the roof was substantially distorted in all cases. They concluded that the head and neck injuries almost certainly occurred inside the vehicle as a consequence of roof crush. MCR/LRI stated that the current Standard No. 216 test improperly takes advantage of the strength imparted by the windshield, because in virtually all rollovers, the windshield fails, resulting in a 75 percent drop in roof strength.

Instead, MCR/LRI urged NHTSA to require the Standard No. 208, *Occupant crash protection*, rollover test with specific head and neck injury criteria,

and maximum levels of roof intrusion. It suggested compliance be demonstrated by a drop test or optionally using head and neck injury criteria in a drop test.

Like MCR/LRI, Advocates thought that the modifications to the current Standard No. 216 test procedure would not be sufficient. It agreed that a modified angle and smaller test plate may result in a more stringent test, but it was not certain that any manipulation of the test plate angles would generate the desired result because of the radical slope of a number of current roof designs. Advocates also stated that there are no data to indicate what forces an A-pillar should withstand, and in which direction it should withstand them, in real-world crashes.

Advocates considered the Standard No. 216 test to be outdated and inadequate. It was concerned that the proposed modifications will be in lieu of a dynamic roof strength test that it believes the agency should adopt. In a dynamic rollover test, Advocates asserted that required roof loads should be much higher than the 1.5 times unloaded vehicle weight now used in the static test, because rollover crashes are known to involve much higher loads. Advocates was also concerned that there are no criteria governing permissible injury levels associated with the test requirements in either Standards 216 or 220.

Although it was not directly related to the petitions, Advocates opposed the exclusion of vehicles between 2,722 and 4,536 kilograms (6,000 and 10,000 pounds) GVWR from the purview of this rule. Advocates commented that this group includes small school buses, which carry many young passengers. Advocates stated that excluding these vehicles is not a responsible stance for an agency charged with protecting and enhancing public safety in passenger vehicles.

V. NHTSA Research on the Proposed Test Procedure

A. Passenger Cars

Based on the comments to the notice, the agency decided to test two passenger cars using the current Standard No. 216 test procedure, and a modified test procedure based on the Ford recommendation. Because the Ford Taurus was one of the vehicles mentioned in Ford's petition, it was chosen as one of the vehicles to be tested by the agency.

The other passenger car tested was the Dodge Neon. The Dodge Neon had the highest roof slope among approximately 30 passenger cars surveyed by the agency. NHTSA concluded that if a revised test procedure is suitable for a contoured roof such as that in the Dodge Neon, and if it is at least as stringent as the current test procedure, then that test would be suitable for all passenger vehicles that are currently being produced.

Both the left and right sides of each vehicle's roof were tested. Standard No 216 only requires testing one side of the roof per vehicle, so there is a slight possibility that the deformation caused by the first test affected the results of the second test. However, the amount of roof crush and the area contacted by the test plate were so small that NHTSA judged that the integrity of the roof structure on the other side of the vehicle was not altered by the first test. NHTSA requests comment on this judgment.

The left side was tested using the current Standard No. 216 test plate placement procedure and the right side was tested using a modified test plate positioning procedure that moved the plate forward until the plate's front edge was vertically flush with the forwardmost point of the exterior roof including trim of the windshield (Figure 1 of the proposed rule). This is a slight modification to the Ford suggested procedure in that the test plate is not positioned relative to the rearmost windshield opening, but rather to the forwardmost point of the exterior roof including trim.

Although NHTSA used a test plate placement procedure slightly different from the one Ford suggested, the agency believes that its procedure still addresses Ford's concerns relating to consistent placement of the test plate for repeatability and concentrated loading when the plate leading edge is behind the leading edge of the roof. Placement of the test plate leading edge at the forwardmost point of the roof prevents the leading edge of the plate from being placed several inches rearward of the A-pillars, where it would penetrate into the roof. Under Ford's suggested test plate placement procedure, the leading edge of the plate may penetrate the roof if a line connecting the rearmost points on either side of the windshield edge of the roof is more than 25 mm (1 inch) behind the forwardmost point on the roof, which is usually located at the longitudinal centerline of the vehicle.

The force-deflection curves generated by the current and modified test plate placement procedures for the Ford Taurus and Dodge Neon are available in the docket. For the Ford Taurus, up to approximately 10 mm (0.4 inches) of roof crush, the force does not build up when using the current Standard No. 216 test procedure. After this point, the slope of the traces (which correlates with roof stiffness) under the two procedures are about the same. Once 40 mm (1.57 inches) of crush is reached, the modified and current test procedures produce almost identical force-deflection results. Total roof deflection was about 54 mm (2.1 inches) under both the procedures, at 22,240 N (5,000 pounds) of applied plate load.

The results from the Dodge Neon roof crush tests showed almost identical force-deflection characteristics in the current and modified test procedures up to 46 mm (1.8 inches) of crush. At 46 mm (1.8 inches), the currently prescribed test procedure reached 1.5 times the unloaded vehicle weight of the tested vehicle. Under the modified test procedure, the load requirement was reached after about 54 mm (2.1 inches), indicating a 17 percent increase in the roof crush. The required load limits were reached within the specified roof deflection limits (127 mm, or 5 inches) for both vehicles, under both the current and modified test procedures.

Roof crush results from the Taurus and Neon vehicles indicate that the modified procedure could be adopted by the agency without any appreciable reduction in test stringency. NHTSA concludes that the 17 percent extra crush under the modified test procedure on the Dodge Neon is not appreciable because it represents a displacement of only 8 mm (0.3 inches), but requests comment on this assessment. The modified test procedure would alleviate the ambiguous language in current Standard No. 216, and it would position the test plate more consistently.

B. Raised Roof Converted Van Tests

To compare the stringency of the Standard Nos. 216 and 220 roof crush procedures when applied to raised roof vehicles, the agency tested a 1992 Chevy Astro Van with a raised roof in accordance with the modified Standard No. 216 test procedure, and compared the test results with the test results of an altered 1994 GMC Safari van tested in accordance with Standard No. 220 test procedures. The agency obtained the Safari Van test data from a test report produced by General Testing Laboratories, Inc., for Mark III Industries. Although the two vehicles were not identical, they are both ''L/M'' class vans produced by GM and the raised roofs in each were very similar in style. The roofs were cut out behind the B-pillar. This, according to a RVIA representative, is the predominant method used by alterers in converting vans to recreational vehicles. This method is preferred because the roof bows are not removed at the B-pillar,

thus helping to retain the roof support over the front occupant compartment.

For purposes of the modified test, the roof over the front occupant compartment was defined as the roof area between a transverse vertical plane passing through a point 162 mm (6.4 inches) rearward of the seating reference point (SgRP) of the driver seat and a transverse vertical plane passing through the forwardmost point on the roof including trim. NHTSA requests comment on the appropriateness of this definition.

The data from the 1994 GMC Safari van showed the force and deflection of the roof at an applied load 1.5 times the unloaded vehicle weight in a Standard No. 220 type test (the test report is available in the docket). The test plate covered the entire roof and was controlled by 4 hydraulic rams, one at each corner. The initially horizontal plate was lowered until the plate contacted the roof at two points. A load was applied. When 1.5 times the unloaded vehicle weight was reached, the maximum deflection was 51 mm (2 inches) at the left front corner of the test plate. Standard No. 220 specifies a maximum deflection of 130 mm (5.12 inches).

The agency conducted its own test using a modified Standard No. 216 test procedure and recorded the force-deflection characteristics on a 1992 Chevy Astro van with a raised roof very similar to the 1994 Safari van tested using the Standard No. 220 procedure. The test report for the test conducted by NHTSA is also available in the docket. The test plate was oriented in the same manner as in passenger car tests using the modified test procedure (forward edge of the plate flush with the forwardmost exterior roof point along the longitudinal centerline of the vehicle). The test plate loaded the roof initially at the highest point on the raised roof, which was behind the B-pillar and above the original roof by about 178 mm (7 inches). Roof crush was continued for approximately 533 mm (21 inches) of crush, recording the force-deflection characteristics over that entire distance.

The force-deflection trace from the modified Standard No. 216 test (available in the docket) shows that 1.5 times the unloaded vehicle weight was reached after 51 mm (2 inches) of roof crush at the initial point of contact. After an additional 51 mm of roof crush, the roof was loaded through other contact points forward of the initial point of contact. The crushing of the roof continued until the plate contacted another point on the roof over the front occupant compartment. This trace shows the force vs. displacement curve for the entire crushing sequence of the roof. After a total crush of approximately 173 mm (6.8 inches), the plate reached the original roof structure prior to conversion, and the load at that point was 35,000 N (7,870 pounds). The force peaked at 45,000 N (10,120 pounds) when the total roof crush was about 211 mm (8.3 inches), and then force level dropped to about 42,000 N (9,450 pounds) as the roof was crushed to 285 mm (11.2 inches).

The results of the Standard No. 216 and Standard No. 220 tests were then compared to determine whether the Standard No. 220 test was as stringent as the Standard No. 216 procedure and tested the appropriate areas of the roof for proper crush strength. Both vehicles reached 1.5 times the unloaded vehicle weight at approximately 51 mm (2 inches) roof crush.

The raised roof reached a higher test load (30,700 N, or 6,900 pounds, compared to 26,700 N, or 6,000 pounds) with less crush of the roof during the Standard No. 220 type test mainly because of the difference in the area of contact between the roof and the test plate in the two test procedures. The test plate load in the Standard No. 220 test procedure was distributed over a larger roof area and thus enlisted more support pillars in developing the load. Moreover, the test did not preferentially crush the roof over the front occupant compartment.

Therefore, the Standard No. 220 test procedure appears to be slightly less stringent than the procedure in Standard No. 216. A similar raised roof developed a higher load under the Standard No. 220 procedure than under the Standard No. 216 procedure. Therefore, because the load requirements are essentially the same under the two test procedures, a roof would more easily sustain load and pass the test under the Standard No. 220 procedure. The Standard No. 220 test also does not test the integrity of the front roof structure as well as Standard No. 216, which concentrates on the roof over the front seat occupants.

VI. Agency Response to the Comments

A. Issues Related to the RVIA Petition

The agency does not consider the Standard No. 220 test easier to administer than the Standard No 216 test, as posited by Ford. Moreover, the total cost for a Standard No. 220 test is slightly higher than that for a Standard No. 216 test. Therefore, the agency disagrees with Ford's rationale for using the Standard No. 220 test procedure.

The agency has examined the applicability of the Standard No. 220 test procedure for roof crush resistance of raised roof vehicles. Standard No. 220 and 216 test results were compared to determine the applicability of a 220-type test. Results reveal that a 220-type test will be less stringent when compared to the Standard No. 216 test when the test plate is positioned to apply the load over the front occupant compartment.

Volkswagen's and Ford's suggestion for excluding the crushing of the raised roof portion from the 127 mm (5 inch) limitation in the standard was investigated by the agency, as detailed in the van tests above. NHTSA concluded that, if the plate is placed over the front occupant compartment and A-pillar, where roof integrity is most important, the proposed test criteria could be considered as stringent (in terms of providing the same level of occupant safety) as the current test criteria. Therefore, the agency tentatively agrees with Ford and Volkswagen that allowable roof crush for added-on roofs under Standard No. 216 could be increased to reflect the added space between the original roof and the raised roof.

Unfortunately, NHTSA can see no practical way to determine the pre-alteration position of the original roof. The original roof is no longer present, so no measurements can be made between it and the added-on roof. In addition, the original roof may have compound curves, making the precise determination of its former location relative to the initial contact point on the added-on roof difficult. Although NHTSA is not proposing to modify the test procedure to account for it at this time, the agency specifically requests comment on possible methods for taking this increased head room into account. If the commenters suggest a suitable method, NHTSA may include such a modification in the final rule. NHTSA also requests comment on how or whether the test procedure should address the tinted glass panels, or sunroofs that some vehicles have over the front occupant compartment.

The agency disagrees with S&S Coach Company that funeral coaches should be excluded from normal Standard No. 216-type testing. The agency believes that these vehicles are driven at a normal range of speeds most of the time and could be exposed to the risk of rollover, just as other passenger vehicles on the highway. Since some of these vehicles have raised roofs, they would be subject to the amended test procedure used for raised roof vans. However, the load requirements would

be the same as for unmodified vehicles, whether passenger cars, multi-purpose passenger vehicles, trucks, or buses.

Although the agency would welcome data on roof loads experienced by vehicles in ''realistic, injury-producing rollovers'', which MCR/LRI suggested was necessary, NHTSA is not aware of any such data. NHTSA believes that such data would be difficult if not impossible to generate because, due to the inherent complexity of rollovers and injury causation, it is difficult to determine precisely the role of roof crush in causing head/neck injury.

B. Issues Related to the Ford Petition

Regarding Ford and the AAMA's request that NHTSA consider harmonization of the roof crush standard, NHTSA does not believe that is an appropriate step at this time. There is no UN/ECE equivalent with which NHTSA can harmonize. Further, the Canadian CMVSS No. 216's reference to ''the left front or the right front portion of the vehicle's roof structure'' is not sufficiently specific to meet the objectivity requirements that apply to all FMVSSs. It would also not provide the repeatability that Ford desires.

NHTSA already tests with roof racks removed, as Ford suggested in its petition. In a September 21, 1992 interpretation letter, NHTSA stated that the agency would conduct its compliance testing for Standard No. 216 with roof-mounted accessories such as roof racks removed, because the purpose of the test is to measure the strength of the roof, not the strength of roof mounted accessories. Further, conducting the test with roof mounted accessories in place could influence the positioning of the test device. Although this issue has been addressed by interpretation, NHTSA is adding a sentence to the regulatory text to make it explicit in the CFR.

GM urged that the agency conduct a study to determine the appropriateness of the current test plate angles. Preliminary studies have been conducted by the agency with an alternative plate angle of zero degrees with respect to the longitudinal axis and fifteen degrees with respect to the lateral axis of the plate. However, these studies do not provide a sufficient basis for modifying the plate angle or size requirements in the test procedures.

The agency welcomes any data Ford submits on pre-stressing of the A-pillar and roof due to the tie-down method used in Standard No. 216. However, since Ford is not sure that the tie-down method is a problem and no other manufacturer has brought the matter to the agency's attention, the agency will not pursue this matter until Ford submits more data. NHTSA notes that modification of the tie-down method, if necessary, can probably be addressed by a change in the compliance test procedure and would not require an amendment to the standard.

Regarding Mercedes-Benz's contention that the plate angles should not change, the agency agrees that a test with a higher plate angle would be more stringent because it would stress the A-pillar in a more lateral direction. However, without changing the plate angles or size, the initial contact point will not change. If the initial contact point is too far behind the A-pillar, the load will be transferred primarily through the B-pillar, instead of the A-pillar, and thus not test roof strength in the area over the front occupant compartment. Nevertheless, the agency is taking the conservative approach of not proposing changes in test plate angles at this time because it prefers to accumulate more data on the effect of different plate angles. Until these data are developed by or supplied to the agency, the agency will defer proposing modifications of the load limits and plate angles and sizes. NHTSA requests any available data on this subject.

NHTSA agrees with Volkswagen's suggestion that any amendment of Standard No. 216 be flexible and applicable to different vehicle roof configurations. It is always the intent of the agency to develop test procedures for its rules that are uniformly applicable to all vehicles, irrespective of their design configuration.

NHTSA agrees with MCR/LRI Inc. that there should be some data showing that the Ford recommendation does not reduce the stringency of the regulatory requirements. In order to assure that the stringency of the standard is maintained, the agency conducted comparison tests using the current test procedure and the proposed test procedure.

Like MCR/LRI, the agency is concerned about rollover safety and head and neck injuries resulting from roof crush. However, NHTSA questions whether the head/neck injuries in MCR/LRI's case study of 50 rollover crashes are solely caused by excessive roof crush. Correlation of roof distortion with injury is not sufficient evidence to conclude that reduced roof intrusion alone would have prevented head/neck injuries.

The agency disagrees with MCR/LRI's contention that the current Standard No. 216 test improperly takes advantage of the strength imparted by the windshield. NHTSA recognizes that the windshield is, for engineering purposes, an integral part of the structures that manufacturers use to strengthen the roof. In view of this, the windshield should not be separated from the roof greenhouse structure during a roof crush test. While the windshields failed in the very severe rollover crashes selected by MCR/LRI, resulting in diminished roof crush resistance, the agency does not agree that the test procedure should reflect these unusually severe rollover crashes. All of the crashes that MCI/LRI selected resulted in serious to fatal head or neck injuries, while less than five percent of non-ejected occupants in all rollover crashes receive such injuries. The windshield probably contributes to roof crush resistance in more representative, less severe, rollover crashes, and the strength it imparts should be counted in the consistent minimum level of roof strength that the standard ensures.

The agency agrees with Advocates and MCR/LRI that it has not found sufficient data to propose a different plate angle and size for all vehicles at present. However, Standard No. 216's compliance test data show that roof contact area is generally very small, especially for late model year vehicles. The table ''FMVSS 216 Data Compilation'' in the docket shows that in most cases less than 100 square inches of roof are crushed. In view of this, a smaller test plate would be sufficient for roof crush testing of a majority of production vehicles. NHTSA requests comment on this issue, and specifically on the size of the small test plate.

The agency is not planning an upgrade of Standard No. 216 to a dynamic test at this time. Instead, this rulemaking is only amending Standard No. 216 test procedure to the extent necessary to remove the ambiguity of test plate placement for testing and the controversy of testing raised roof vehicles, while maintaining the stringency of the current test requirement. NHTSA would welcome any submissions of data supporting an upgrade of Standard No. 216 to include a dynamic test procedure and/or to include a rollover injury criteria. However, the agency is not planning to make them a part of this rulemaking.

NHTSA disagrees with Advocates that there is any gap in its safety standards concerning rollover safety for school buses. Standard No. 220's roof crush requirements apply to *all* school buses, even those between 2,722 and 4,536 kilograms (6,000 and 10,000 pounds). Therefore, these vehicles, by virtue of their intended purpose, are covered by the appropriate roof crush requirements. Further, the agency is also not

convinced that the safety problem due to roof crush in vehicles which have a GVWR rating above 2,722 kilograms (6,000 pounds) necessitates any change in Standard No. 216 at this time.

VII. Proposed Test Procedure and Requirements

A. Description of Proposal

NHTSA is proposing to modify the test plate size and placement to fulfill the original intent underlying Standard No. 216, and reduce test variability. A summary of the proposed changes to the requirements and test procedures follows:

(1) For all vehicles without raised roof structures, the requirements and test procedures would remain the same, except that the initial placement of the leading edge of the test plate would be flush with the forwardmost edge of the roof. This change would ensure engagement of the A-pillars.

(2) For vehicles with a raised or altered roof, the test plate size might vary depending upon the position of the raised roof relative to the front occupant compartment. The current large test plate would be placed in position with its lower surface touching the initial contact point. If the initial contact point is on any portion of raised or altered roof rearward of the front occupant compartment, then a small test plate (610 mm by 610 mm, or 24 inches by 24 inches) is used for testing instead. Because the 5 degree plate angle is so low, initial contact of a large test plate with the raised roof to the rear of the front occupant compartment would be most likely to occur on vehicles whose raised or altered roof is completely located to the rear of the front occupant compartment. The performance requirement would be the same as when testing with the large test plate. The small test plate would have to reach a load of 1.5 times the unloaded vehicle weight within 127 mm (5 inches) of displacement.

A small test plate is needed in this particular situation to assure that the roof over the front occupant compartment in the area of the A-pillars is tested. Otherwise, the large plate might test only the roof to the rear of the front occupant compartment. In addition, NHTSA wants to make sure that the roof modification process does not significantly affect the original strength of the front roof structure. Therefore, it would be appropriate to use a smaller test plate to evaluate only the front roof strength for vehicles (mostly van conversions) where the roof to the rear of the front occupant compartment may have been compromised during the conversion. Conversely, it would be appropriate to test a raised roof which is located, in part, over the front occupant compartment, even if some raised roof to the rear were also subsequently crushed.

The size of the smaller plate must be large enough so that the plate edges do not penetrate the roof. Based on its measurement of nine late model year minivans, NHTSA believes that a test plate of 610 mm by 610 mm (24 inches by 24 inches) would be sufficient. In nearly all the tests, a much smaller area than the size of the proposed small plate was crushed (see Table ''FMVSS 216 Data Compilation,'' in the docket). However, the agency is not proposing to use a smaller plate for all tests because it does not have sufficient data to determine the appropriateness of a smaller test plate for all roof crush tests. NHTSA requests comment on whether the proposed plate size is appropriate.

B. Explanation of NHTSA's Selection of the Proposed Test Procedure and Requirements

Because the agency's testing indicates that the Standard No. 220 test procedure is less stringent than the modified Standard No. 216 test procedure, NHTSA did not adopt RVIA's recommendation to use it. Nevertheless, NHTSA believes that using the modified Standard No. 216 test procedure for testing conversion vans and other such vehicles would address RVIA's and Ford's concerns. The use of the modified procedure also accommodates the belief expressed by the safety groups that the roof strength should not be degraded when part of the roof is cut out and replaced by a raised roof.

Ford's main concern is the variability in the initial contact point inherent in existing test procedures in Standard No. 216. Because of the five degree angle of the larger plate, some vehicles with aerodynamic roof designs could have an initial contact point with the test plate rearward of the A-pillar area, even though the original intent underlying the standard was to test the roof area in the vicinity of the joint of the A-pillar and front header and side rail components.

This concern would be partly addressed by the modified Standard No. 216 procedure. By consistently placing the forward edge of the test plate flush with the forwardmost edge of the roof, the leading edge of the plate would not penetrate into the softer parts of the roof, but would be aligned with the supports for the front occupant compartment. This should assure engagement of the A-pillar in most cases. On some vehicles with highly curved roofs, the initial contact point could still be behind and inboard of the A-pillar area, but at least the plate will contact the A-pillar area after the roof has been depressed a short distance.

However, by itself, realigning the plate would not be sufficient to address RVIA's concern and ensure engagement of the appropriate area on all raised roof vehicles. This is because a raised roof may be so high that the A-pillar area would never be engaged before the permissible plate travel is reached. Therefore, NHTSA is proposing to adopt a smaller test plate (610 mm by 610 mm, or 24 inches by 24 inches) for use with vehicles which have altered/raised roof structures located rearward of the front passenger compartment that would make initial contact with the current test plate. This would assure that, for most vehicles, the test plate would contact the front roof only. The choice of test plate is based on whether initial contact is with the roof over the front occupant compartment.

VIII. Changes to the Regulatory Text

Substantial changes to the regulatory text are being proposed, although the substance of the regulation remains largely the same. To accommodate the insertion of a definitions paragraph (customarily located at the beginning of NHTSA's standards), all subsequent paragraphs, i.e., those beginning with S4, would need to be renumbered. S4 (former ''requirements'') would become S5. S5 (former ''test device'') would become S6. S6 (former ''test procedure'') and all of its subparagraphs would become S7 and subparagraphs. The definitions paragraph would be designated S4. By better segregating the requirements and the test procedures between S5 and S7, it is possible to eliminate the redundant statement of parallel test procedures under the former S6.3. Figure 1 would be revised to reflect the new plate positioning procedure.

In addition, a number of clarifying minor changes were made to the regulatory text. A sentence was added to the test procedures to explicitly specify that non-structural components such as roof racks would be removed prior to testing. This was already the agency's interpretation of the current test procedure.

IX. Proposed Lead Time

The proposed amendments to Standard No. 216 are not likely to impose any additional costs on vehicle manufacturers and converters, although NHTSA requests comments on this issue. The amended test procedures

provide for repeatable testing that follows the original intent of the standard. For most vehicles, the test would be essentially the same as it is now. Even for those vehicles for which use of a smaller test plate would be specified, the same or similar equipment is used for testing.

The agency is not proposing the five year lead time requested by Ford. This action is being taken at Ford's request and, to the extent that test plate placement differs from the current procedures, it should make compliance with the standard easier for all vehicles, since engagement of the A-pillars is assured.

Consequently, the amended rule would become effective, and compliance would be required, on 180 days following the publication of the final rule. However, manufacturers may voluntarily comply with this rule earlier.

X. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This rulemaking document was not reviewed under E.O. 12866, ''Regulatory Planning and Review.'' This action has been determined to be ''non-significant'' under the Department of Transportation's regulatory policies and procedures. The proposed amendments would not impose any new requirements but simply clarify existing test procedures and allow them to be applied consistently to the intended area of the roof on all vehicles. Therefore, the impacts of the proposed amendments would be so minor that a full regulatory evaluation is not required.

B. Regulatory Flexibility Act

NHTSA has also considered the impacts of this notice under the Regulatory Flexibility Act. I certify that this proposed rule would not have a significant economic impact on a substantial number of small entities. As explained above, the rule would not impose any new requirements but would instead clarify the test procedures and allow them to be applied to the areas of the roof to which they were originally intended. It would not have any effect on the price of new vehicles purchased by small entities.

C. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980 (P.L. 96–511), there are no requirements for information collection associated with this proposed rule.

D. Executive Order 12612 (Federalism)

NHTSA has analyzed this proposal in accordance with the principles and criteria contained in E.O. 12612, and has determined that this proposed rule would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

E. Civil Justice Reform

This proposed rule would not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a State may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard, except to the extent that the state requirement imposes a higher level of performance and applies only to vehicles procured for the State's use. 49 U.S.C. 30161 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

XI. Submission of Comments

Interested persons are invited to submit comments on the proposal. It is requested but not required that 10 copies be submitted.

Comments must not exceed 15 pages in length (See 49 CFR 553.21). Necessary attachments may be appended to these submissions without regard to the 15-page limit. This limitation is intended to encourage commenters to detail their primary arguments in a concise fashion.

If a commenter wishes to submit certain information under a claim of confidentiality, three copies of the complete submission, including purportedly confidential business information, should be submitted to the Chief Counsel, NHTSA, at the street address given above, and seven copies from which the purportedly confidential information has been deleted should be submitted to the Docket Section. A request for confidentiality should be accompanied by a cover letter setting forth the information specified in the agency's confidential business information regulation. See 49 CFR Part 512.

All comments received before the close of business on the comment closing date indicated above for the proposal will be considered, and will be available for examination in the docket at the above address both before and after that date. To the extent possible, comments filed after the closing date will also be considered. Comments received too late for consideration in regard to the final rule will be considered as suggestions for further rulemaking action. Comments on the proposal will be available for inspection in the docket. The NHTSA will continue to file relevant information as it becomes available in the docket after the closing date, and it is recommended that interested persons continue to examine the docket for new material.

Those persons desiring to be notified upon receipt of their comments in the rules docket should enclose a self-addressed, stamped postcard in the envelope with their comments. Upon receiving the comments, the docket supervisor will return the postcard by mail.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles.

In consideration of the foregoing, it is proposed that 49 CFR Part 571 be amended as follows:

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for Part 571 of Title 49 would continue to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.216 would be amended as follows:

a. S4 is revised.

b. S5 is revised.

c. S6 is revised, and S6.1, S6.2, 6.3 and S6.4 are removed.

d. S7, S7.1, S7.2, S7.3, and S7.4 are added.

e. Figure 1 at the end of the section is revised.

The additions and revisions would read as follows:

§ 571.216 Standard No. 216; roof crush resistance

* * * * *

S4. *Definitions.*

Altered roof means a roof that has had all or part of the original roof removed and replaced by a roof that is higher than the original roof.

Raised roof means, with respect to a roof which includes an area that protrudes above the surrounding exterior roof surface, that protruding area of roof.

Roof over the front occupant compartment means the roof area between a transverse vertical plane passing through a point 162 mm rearward of the SgRP of the designated

left front outboard seating position and a transverse vertical plane passing through the forwardmost point on the exterior surface of the roof, including trim, that lies in the longitudinal vertical plane passing through the vehicle's longitudinal centerline.

S5. *Requirements.*

(a) *Passenger Cars.* Passenger cars shall meet the requirements of this paragraph. When the larger test device, described in S6, is used to apply a force in Newtons equal to 1.5 times the unloaded vehicle weight of the vehicle, measured in kilograms and multiplied by 9.8 or 22,240 Newtons, whichever produces the lower force, to either side of the forward edge of a vehicle's roof in accordance with the procedures of S7, the test device shall not move more than 127 millimeters, measured in accordance with S7.4. Both the left and right front portions of the vehicle's roof structure shall be capable of meeting the requirements, but a particular vehicle need not meet further requirements after being tested at one location.

(b) *Multipurpose passenger vehicles, trucks, and buses with a GVWR of 2,722 kilograms or less that do not have raised or altered roofs.* Multipurpose passenger vehicles, trucks, and buses with a GVWR of 2,722 kilograms or less that do not have raised or altered roofs shall meet the requirements of this paragraph. When the larger test device, described in S6, is used to apply a force in Newtons equal to 1.5 times the unloaded vehicle weight, measured in kilograms and multiplied by 9.8, to either side of the forward edge of a vehicle's roof in accordance with the procedures of S7, the test device shall not move more than 127 mm, measured in accordance with S7.4. Both the left and right front portions of the vehicle's roof structure shall be capable of meeting the requirements, but a particular vehicle need not meet further requirements after being tested at one location.

(c) *Multipurpose passenger vehicles, trucks and buses with a GVWR of 2,722 kilograms or less that have raised roofs or altered roofs.*

(1) Multipurpose passenger vehicles, trucks and buses with a GVWR of 2,722 kilograms or less having raised roofs or altered roofs shall meet the requirements of this paragraph. When the larger test device (or the smaller test device, when specified by paragraph (c)(2)), described in S6, is used to apply a force in Newtons equal to 1.5 times the unloaded vehicle weight of the vehicle, measured in kilograms and multiplied by 9.8, to either side of the forward edge of a vehicle's roof, in accordance with the procedures of S7, the device shall not move more than 127 millimeters, measured in accordance with S7.4. Both the left and right front portions of the vehicle's roof structure shall be capable of meeting the requirements, but a particular vehicle need not meet further requirements after being tested at one location.

(2) For vehicles on which the initial contact point of the larger test device, when oriented as specified in paragraph S7.2, is with the raised roof to the rear of the front occupant compartment, the smaller test device described in S6 is used for testing instead of the larger test device.

S6. *Test device.* The larger test device is a rigid unyielding block with its lower surface formed as a flat rectangle 762 millimeters by 1,829 millimeters. The smaller test device is a rigid unyielding block with its lower surface formed as a flat square 610 millimeters by 610 millimeters.

S7. *Test procedure.* Each vehicle shall be capable of meeting the requirements of S5 when tested in accordance with the following procedure.

S7.1 Place the sills or the chassis frame of the vehicle on a rigid horizontal surface, fix the vehicle rigidly in position, close all windows, close and lock all doors, and secure any convertible top or removable roof structure in place over the passenger compartment. Remove roof racks or other non-structural components.

S7.2 Orient the test device as shown in Figure 1, so that—

(a) Its longitudinal axis is at a forward angle (in side view) of 5° below the horizontal, and parallel to the vertical plane through the vehicle's longitudinal centerline;

(b) Its transverse axis is at an outboard angle, in the front view projection, of 25° below the horizontal (note: if using the smaller test device, the longitudinal and transverse axes will be of the same length);

(c) Its lower surface is tangent to the surface of the vehicle;

(d) The initial contact point, or center of the initial contact area, is on the longitudinal centerline of the lower surface of the test device; and

(e) The midpoint of the forward edge of the lower surface of the test device is tangent to the transverse vertical plane passing through the forwardmost point on the exterior surface of the roof, including trim, that lies in the longitudinal vertical plane passing through the vehicle's longitudinal centerline.

S7.3 Apply force so that the test device moves in a downward direction perpendicular to the lower surface of the test device at a rate of not more than 13 millimeters per second until reaching the force level specified in S5. Complete the test within 120 seconds. Guide the test device so that throughout the test it moves, without rotation, in a straight line with its lower surface oriented as specified in S7.2(a) through S7.2(b).

S7.4 Measure the distance that the test device moved, i.e., the distance between the original location of the lower surface of the test device and its location as the force level specified in S5 is reached.

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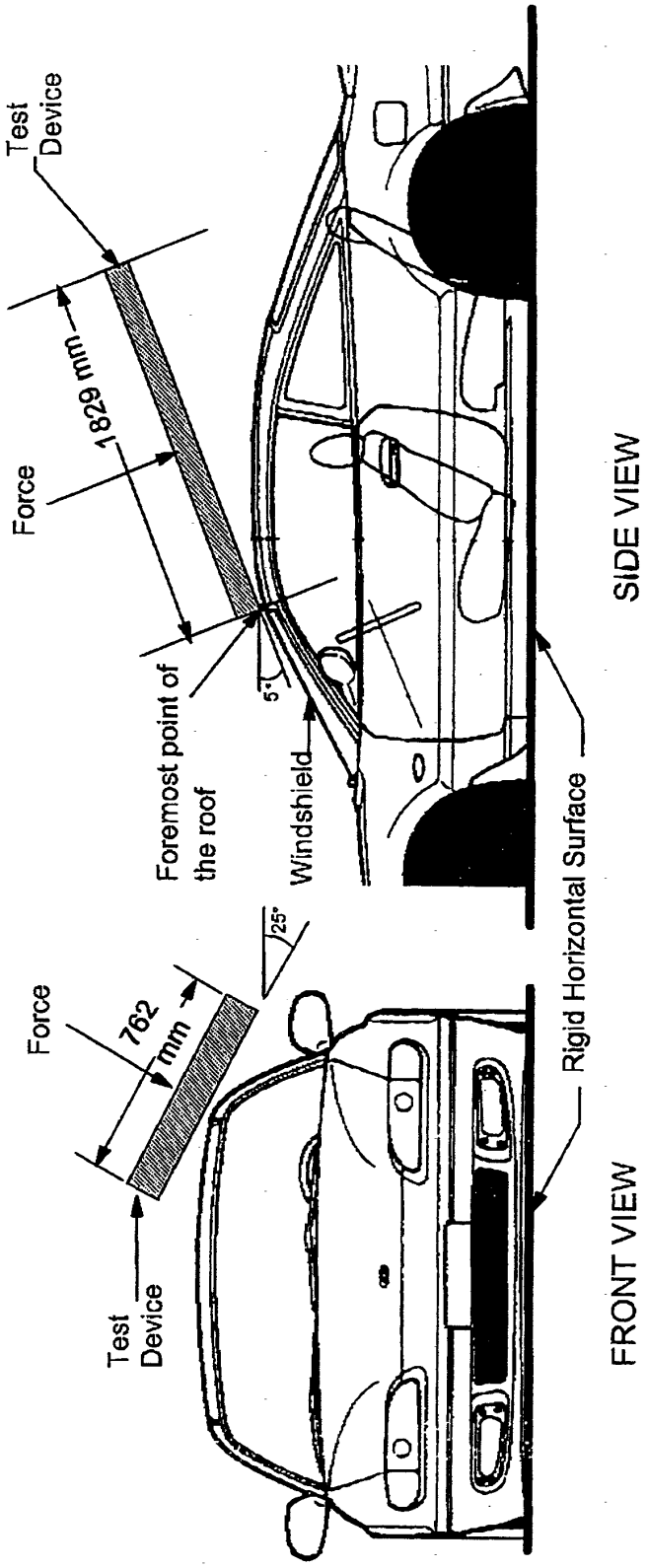

FIGURE 1. Test Device Location and Application to the Roof

Issued on: February 21, 1997.

James Hackney,

Director, Office of Crashworthiness Standards.

[FR Doc. 97–4762 Filed 2–26–97; 8:45 am]

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