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VIA facsimile
October 14, 2004

National Highway Traffic Safety Administration
Docket Room, PL-401
400 Seventh Street, SW
Washington, DC 20590

NHTSA-2004-17694-31

Re: Docket No. 17694; NMEDA Comments on National Highway Traffic Safety Administration's (NHTSA) Side Impact Protection Proposed Rule; *69 FR 2799,* May 17, 2004

Dear Sir or Madam:

The National Mobility Equipment Dealers Association (NMEDA) appreciates this opportunity to comment on the agency's proposed rule to upgrade the FMVSS 214 – Side Impact Protection.

NMEDA is a non-profit association dedicated to providing safe and quality adaptive transportation and mobility for consumers with disabilities. NMEDA:

- Encourages collaboration and professionalism among its members comprised of dealers, manufacturers, rehabilitation professionals, government agencies, regulatory bodies, insurance and finance companies to provide consumers a seamless solution to their adaptive vehicle needs.

- Promotes and disseminates national guidelines to ensure safety for the consumer and public.

- Facilitates training and education so members are properly qualified and knowledgeable about the latest technologies available.

- Ensures consumers receive the highest quality vehicle modification through the Quality Assurance Program membership.

- Creates local community partnerships between, OEM and dealer members and consumers to maximize options for adaptive vehicle modification needs.

Although NMEDA represents companies that perform work on adaptive vehicles both prior to and after first retail sale, we are commenting here solely on behalf of intermediate and final stage manufacturers and alterers that perform work prior to first retail sale (and thus cannot make use of the

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limited exemptions stated in Part 595, Requirements for vehicle modifications to accommodate people with disabilities).[1]

Considering the recent efforts NHTSA has made gathering mobility industry data, the agency is aware that many disabled drivers and passengers require unique customized vehicle modifications in order to render the vehicles wheelchair accessible or to otherwise permit their use. Although the proposed rule considers some of these modifications, other types of adaptive modifications will also encounter problems complying with the proposed FMVSS 214 upgrade.

For the reasons explained below, NMEDA supports part of the proposed rule but also recommends a number of changes, as follows:

1. Vehicle-to-Pole test: NMEDA supports excluding vehicles equipped with wheelchair lifts, and vehicles with raised or altered roof designs.

The NPRM's vehicle-to-pole requirements recognize certain unique vehicle categories as having unusual side structures that are not suitable for pole testing. NHTSA proposes to exclude "certain vehicles from the pole test: ... vehicles equipped with wheelchair lifts, vehicles with raised or altered roof designs ..... Many vehicles within these categories tend to have unusual side structures that are not suitable for pole testing or have features, such as a lowered floor or raised roof, which could pose practicability problems in meeting the test." (Note 17 of NPRM.) NMEDA supports this portion of the proposal. NMEDA urges that these vehicles be excluded from <u>both</u> the HIC requirement as well as the thoracic protection requirements. The problematic side structures that NHTSA has properly identified will be just as problematic for thoracic protection as for as head protection.[2]

2. Vehicle-to-Pole test: NMEDA supports excluding other vehicles.

In the NPRM, NHTSA requested comments on the need to exclude other types of vehicles from the pole test. NMEDA would like to emphasize that, like raised roof vehicles, other types of adaptive vehicles have either unusual side structures or design elements that make them unsuitable for a vehicle-to-pole test.

Adaptive vehicles with unusual side structures or design elements are the result of the solutions developed by the mobility industry in order to attain the challenging goal of providing transportation for individuals with disabilities. Many of these individuals are confined to wheelchairs or otherwise require special vehicle features that OEM's do not offer, such as increased door height, increased interior height,

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[1] NMEDA may, upon publication of a final rule concerning FMVSS 214, undertake discussions with the agency with regard to FMVSS 214 and those companies that modify vehicles <u>after</u> first retail sale.

[2] NMEDA believes that partial exclusion (from just HIC) would not be sufficient since, in some cases, side airbag systems may have to be disabled to accommodate the raised/altered roof conversion. In many cases, a raised roof modification includes the complete removal of the OEM roof, including the area between the A and B pillars. The proposed pole test applies to vehicles with a GVWR up to 10,000 pounds. Since vehicles over 6000 pounds GVWR are not currently required to meet the dynamic portion of the FMVSS 214 (214 S5), and since many adaptive vehicles are also exempt from FMVSS 208 (because of the unloaded weight or GVWR of the vehicle), failure to provide a full exemption from the new pole test requirement would severely prejudice the smaller companies raising roofs on full size vans for mobility applications. These companies, with few exceptions, generally have less than 10 employees and operate within their local markets. NMEDA therefore requests that vehicles equipped with raised/altered roofs be entirely excluded from the proposed vehicle-to-pole requirements.

extended movement seating systems, wheelchair securement devices, adapted driving controls, relocated seat belt anchoring systems, lower effort steering and braking systems, and wheelchair ramps or lifts.

2.1 Exemption of Lowered- floor vehicles

In the preamble's discussion of exemptions, NHTSA stated: "Many vehicles within these [exempted] categories tend to have unusual side structures that are not suitable for pole testing or have features, ***such as a lowered floor*** or raised roof, which could pose practicability problems in meeting the test." (Note 17; emphasis added.) In the actual proposed regulatory language (S5(c)), however, lowered-floor vehicles are not listed among the exempted vehicles. This may have been just an oversight. In any event, NMEDA urges that S5(c)(6) be amended to read as follows:

"(6) Vehicles with a raised or altered roof, or a lowered floor; "

Lowered-floor mini vans are a very common adaptive vehicle in the mobility industry. They typically have a lowered floor that is 10 inches below the original vehicle floor surface. In the usual adaptation, the mini van's original front door sill, or rocker panel, is generally left in place but is almost always lowered in the second row. The floor area, usually within the same general horizontal plane of the rocker panel, is removed and lowered by approximately 10 inches. In addition, the rocker panel that is usually continuous on the original vehicle, from the A pillar to the C pillar, is drastically modified between the B and C pillars in a lowered floor mini van - it may also be lowered 10 inches. [3]

NMEDA is of the opinion that the vehicle-to-pole impact performed on a lowered-floor type vehicle presents an enormous problem. Under the FMVSS 214 proposal, the pole impact is in line with the front row occupant's head (center of gravity), and the rocker panel and rocker panel/B pillar interface are thus critical structural elements. Clearly, therefore, the typical mini van adaptive design presents a unique structural configuration that "poses[s] practicability problems in meeting the [vehicle-to-pole] test", and thus merits exemption. [4]

Based on their unique vehicle design features, NMEDA is asking NHTSA to exclude all lowered-floor vehicles from the pole test.

2.2 Exemption of vehicles with extended movement seating systems

Every year, mobility industry companies replace front row seats in over a thousand vehicles with extended travel seat bases and other seating systems designed to facilitate vehicle access. The extended travel seat bases, commonly referred to as 6-way seats, replace the vehicle's original seat base (the

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[3] Moreover, the vast majority of lowered floor vehicles maintain the OEM seats in the front row, but modify the seat bases by adding an extension that allows the original seat to be positioned at, or near, its original height. The front row seats are also generally removable and, in some cases, the seat belt female receptacle may be relocated to the vehicle floor or an additional seat belt receptacle (female) may be attached to the vehicle floor so as to provide a type 2 seat belt system for wheelchair drivers or front row passengers that remain in the wheelchair during transportation. These extended height removable seats are generally less rigid than OEM bases and deformation upon impact are not necessarily comparable to a standard seat base.

[4] There are generally two types of vehicles that are suitable for lowering the floor, full size vans and smaller minivans, both being Multipurpose Passenger Vehicles (MPV's). Considering that the proposed rule would be applicable to vehicles with a GVWR of 10,000 pounds or less, both the full size and mini vans would be required to comply with the vehicle-to-pole specifications of the standard. The structural modifications to the full size vehicle are comparable to the mini van and thus the full size vans should also be exempted.

vehicle's original seat is usually reinstalled on the extended travel seat base) and provide 2, 3 or 4 degrees of movement: longitudinal (approximately 12 inches), vertical (approximately 8 inches), rotation about the seat's vertical axis (approximately 100 degrees) and seat tilt. Because of the different levers and mechanical systems incorporated into the 6-way bases, they are generally less stable that the rigid OEM bases. NMEDA believes that the proposed pole testing requirement would result in higher HIC values in vehicles with extended movement seating systems than in vehicles equipped with OEM seat bases.

Accordingly, NMEDA requests that the vehicle-to-pole test not apply to vehicles fitted with extended travel seating systems installed as a part of a second stage manufacturing process or by a vehicle alterer.[5]

2.3 Exemption of vehicles with wheelchair designated seating positions

Many wheelchair users drive their vehicles from a wheelchair or ride in the front row passenger position, again in a wheelchair. In these cases, the wheelchair is secured to the vehicle floor, and the occupant is restrained with a type 2 seat belt assembly.

The proposed rule does not consider such systems, and NMEDA requests that vehicles equipped with wheelchair restraint devices that permit the wheelchair to be used as a designated seating position be excluded from the vehicle-to-pole requirements.

3. Moveable Deformable Barrier (MDB) vehicle-to-vehicle test: *limited* exemption of lowered floor vehicles

Under both the current and the proposed FMVSS 214, the MDB test applies to vehicles with a GVWR less than 6000 pounds, and both the current rule and the proposal exempt vehicles equipped with wheelchair lifts from the MDB test.

The problem is that very few **lowered-floor vehicles** with a GVWR of less than 6,000 pounds and designed for wheelchair accessibility (mini vans), have wheelchair lifts. They usually have ramps, and are thus subject to the MBD test.

As noted above, lowered-floor mini vans have a unique design whereby the original floor surface is lowered approximately 10 inches, therefore well below the OEM rocker panel. As mentioned in the NPRM, vehicles with a high ride height generally do better in the vehicle-to-vehicle test than vehicles with a lower ride height and, since the lowered floor mini van has a floor to ground clearance height of only approximately 7 to 8 inches, we anticipate that the impact point of the MDB on the mini van will generally be approximately mid-way between the rocker panel and the floor surface. Furthermore, as also noted above, the OEM seats are often attached to seat base extensions which may contribute to higher HIC readings. These vehicles also often have removable seats (with extended bases) in the both the front and second rows and/or extended travel seat bases in the front row. These bases create a higher moment about the attachment point and will probably deform more that OEM bases, contributing to higher injury values than the original unmodified vehicle.

While we appreciate the NHTSA's desire to enhance the protection of small adults by adding a new small female test dummy as well as requiring the use of a new, second generation test dummy

[5] Other seating systems, designed to facilitate egress by rotating outwards, extending through the door opening and then lowering/tilting are generally installed as after-market systems in titled vehicles. These other systems therefore do not have to be addressed here because they are installed under the exemption provided by Part 595.

representing mid-size adult males, we are concerned that these dummies may not be representative of typical mobility vehicle occupants. One group of mobility vehicle occupants are usually traveling in a wheelchair or transferring from a wheelchair to a seat specially designed to facilitate the transfer. This category of occupants may be large or small statured, may be an adult or a child, may occupy the first or second row of the vehicle and may be male or female. They are almost always in an outboard seating position and restrained with type 2 seat belt assemblies.

Considering that there is no, or very limited, data available to determine the physical specifications, or the distribution pattern of the physical specifications of mobility vehicle occupants, except that at least one of them is in a wheelchair, we are of the opinion that the proposed additional MDB test may not have the intended result of enhancing the safety of real world occupants of mobility vehicles. The current MDB test required by the 214 provides an indication of occupant injury for the specific 50th percentile male and NMEDA is of the opinion that this requirement should remain in effect as a means of evaluating the general vehicle safety performance in side impacts.

The NMEDA requests that mobility vehicles having raised/altered roofs, lowered floors and vehicles equipped with extended travel seating systems be required to meet only the MDB test with the new mid-size male, and therefore be exempt from the MDB requirements for the small female test dummy, until such time as the NHTSA can determine if, in fact, the small female is the most accurate representation of the stature of mobility vehicle occupants.

Under both the current and the proposed FMVSS 214, the MDB test applies to vehicles with a GVWR less than 6000 pounds, and both the current rule and the proposal exempt vehicles equipped with wheelchair lifts from the MDB test.

The problem is that very few **lowered-floor vehicles** with a GVWR of less than 6,000 pounds and designed for wheelchair accessibility (mini vans), have wheelchair lifts. They usually have ramps, and are thus subject to the MBD test.

The side impact test is of significant concern to lowered-floor mini van manufacturers. As noted above, lowered-floor mini vans have a unique design whereby the original floor surface is lowered approximately 10 inches, therefore well below the OEM rocker panel. As mentioned in the NPRM, vehicles with a high ride height generally do better in the vehicle-to-vehicle test than vehicles with a lower ride height and, since the lowered floor mini van has a floor to ground clearance height of only approximately 7 to 8 inches, we anticipate that the impact point of the MDB on the mini van will generally be approximately mid-way between the rocker panel and the floor surface. Furthermore, as also noted above, the OEM seats are often attached to seat base extensions which may contribute to higher HIC readings. These vehicles also often have removable seats (with extended bases) in the both the front and second rows and/or extended travel seat bases in the front row. These bases create a higher moment about the attachment point and will probably deform more that OEM bases, contributing to higher injury values than the original unmodified vehicle.

For these reasons, NMEDA asks that FMVSS 214 specifically exclude all lowered-floor type vehicles from the MDB test requirements.

4. The proposed rule's cost considerations

NMEDA emphasizes that many of the companies that alter or complete vehicles for mobility applications are small businesses. NMEDA is concerned that without the adoption NMEDA's suggestions set forth herein, many of its members will not be able to afford the expenses associated with the proposed 214. Although there are larger companies that alter or complete thousands of vehicles a

year, the majority of alterers or FSMs in the mobility industry produce less than 200 vehicles a year – of many different makes and models. The lowered floor or raised/altered roof full size vans are almost exclusively altered/completed by very small manufacturers; only a handful of larger companies complete personal use vehicles on the full size chassis.[6]

Even with NMEDA's limited testing on full size vans and offering to its qualifying membership detailed design parameters that have been certified to many FMVSS requirements, the costs facing the mobility industry in the absence of the adoption of NMEDA's proposed suggestions are daunting. Considering that a vehicle-to-pole test would cost approximately $15,000, a MDB test approximately $12,500 and the average cost of a chassis is $22,500, the 4 additional tests proposed, on both raised-roof and lowered-floor types of vehicles, would increase the cost of these programs by more than $290,000 – assuming that no re-tests are required and excluding research, prototyping and miscellaneous testing expenses. Assuming an OEM platform-life of 5 years, the financial burden is therefore considerable.

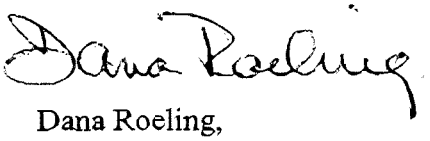
NMEDA is very concerned for the very low volume manufacturers that raise roofs or lower floors on full size vans as well as for the smaller companies that lower floors on mini vans. If the cost to demonstrate compliance is too high, these companies may no longer be competitive and will be driven from the market. The end user would then loose the option of going to a local mobility conversion company, and such a loss would mean a smaller selection of companies offering specialized vehicles, resultant higher costs, and longer distances to travel for the purchase or repair of adaptive vehicles.

5. Conclusion

For the reasons stated above:

a. NMEDA supports that portion of the NPRM proposing to exclude from the pole test all vehicles equipped with wheelchair lifts and all vehicles with raised or altered roof designs. NMEDA urges that these vehicles be excluded from both the HIC requirement as well as the thoracic protection requirements;
b. NMEDA requests that S5(c)(6) be amended to read as follows: "(6) Vehicles with a raised or altered roof, or a lowered floor; "
c. NMEDA requests that the vehicle-to-pole test requirements not apply to vehicles with extended travel seating systems installed as a part of a second stage manufacturing process or by a vehicle alterer;
d. NMEDA requests that vehicles equipped with wheelchair restraint devices that permit the wheelchair to be used as a designated seating position be excluded from the vehicle-to-pole requirements; and
e. NMEDA requests that FMVSS 214 exclude all lowered-floor vehicles from the MDB test requirements.

Respectfully submitted,



Dana Roeling,
Executive Director

[6] The lowered floor mini vans are generally manufactured by larger companies but there are some lower volume manufacturers of lowered floor mini vans that would have a much higher cost to demonstrate compliance to the proposed requirements. These small volume manufacturers may produce up to 10 times less than the larger ones