

system already required by the standard, some have provided video systems for an auxiliary rear view. The United Parcel Service (UPS) has installed video systems in approximately 65,000 of its delivery trucks. These systems provide the driver with a view of the area directly behind the vehicle and are generally used for backing purposes. The view is similar to that which is provided by an interior mirror in a passenger vehicle, but can afford a much larger field of view close to the vehicle.

One of the benefits of eliminating exterior mirrors on vehicles would be in the area of fuel economy. Removing these mirrors would decrease the wind resistance on a vehicle and thus decrease the amount of fuel consumed. These benefits have been estimated to be as much as two percent fuel savings for large trucks.

Another benefit of a video system is the ability to filter out or reduce visual obstructions or degradations caused by snow, rain, lack of light, or glare from following vehicles' headlamps. By adjusting a monitor's contrast, brightness, or sharpness, the image provided to the driver can be controlled. It is likely that these systems will be controlled by a computer that can detect these visual hindrances and automatically correct for them.

#### *AM General's Petition*

In its September 2000 petition, AM General recommended that the agency amend Standard No. 111 to allow manufacturers the option of placing a convex passenger-side rearview mirror on light trucks with a GVWR of more than 4,536 kg, but with a length of less than 508 cm. Currently, these vehicles must have a flat passenger-side mirror with a reflective area of not less than 323 cm<sup>2</sup>. As stated above, light trucks with a GVWR 4,536 kg or less may be equipped with either a convex mirror or a flat mirror that meets passenger car requirements or a flat mirror with a reflective area of not less than 126 cm<sup>2</sup>. AM General proposed three conditions that these vehicles would have to meet to be equipped with a convex mirror: (1) The mirror should be at least 323 cm<sup>2</sup>

in area; (2) it should comply with the convex mirror requirements in Paragraph S5.4 of the standard; and (3) the overall length of the vehicle should be less than 508 cm.

By petitioning the agency, AM General is attempting to solve a problem it has had with a specific vehicle it produces, the Hummer. The Hummer is a four-wheel-drive vehicle that, depending on the configuration, can have a GVWR of between 4,672 kg and 5,488 kg. Because the Hummer has a GVWR that is greater than 4,536 kg, it is required to have a flat passenger-side mirror with a reflective area of not less than 323 cm<sup>2</sup>. AM General states that a large majority of Hummer owners are installing small, round convex mirrors on their flat passenger-side mirrors to provide a better rearward field of view, particularly for lane changes. It has received numerous requests from these owners to install a full-sized convex mirror like those offered on similarly sized light trucks. The only explanation AM General has been able to provide to them is that Standard No. 111 does not allow such mirrors on these vehicles. Since the Hummer is essentially the same size as some other full size light trucks, AM General does not think it reasonable that it would be precluded from utilizing the same type of rearview mirrors as them. AM General believes that, although the vehicle owner's application of the small convex mirrors to the flat mirrors may provide some additional benefit, it is not the ultimate solution. A full size convex mirror would provide a larger field of view. In addition, the full size convex mirror would have less distortion, as small add-on convex mirrors, or spot mirrors, tend to have small radii of curvature.

On July 26, 2000, AM General met with the agency to outline its concerns and to give agency staff the opportunity to drive the Hummer with two mirror configurations: a standard 323 cm<sup>2</sup> flat mirror and a 323 cm<sup>2</sup> convex mirror. Three agency engineers examined the two mirror systems on the Hummer and two drove it with these systems. One engineer sat in the Hummer and assessed the fields of view of both mirrors without driving it. All three

agreed that, when attempting a lane change to the right, the passenger-side convex mirror provided a better view of the rearward area when compared to the flat one. Because the interior rearview mirror did not provide an adequate rearward view, the driver would have to rely heavily on the outside mirrors. This increased the importance of having a wider field of view in the outside mirrors, even if it could cause greater distortion.

AM General supports its petition by pointing out that in 1975, when Standard No. 111 was amended to require flat passenger-side mirrors on vehicles of over 4,536 kg GVWR, there were no vehicles in use that were comparable to the Hummer. In the rulemaking, the agency's rationale for requiring flat passenger-side mirrors was that a driver of a large vehicle needs an undistorted view when moving in reverse. Also, these larger vehicles did not typically have an interior flat mirror to aid in judging distance. In the final rule, the agency linked vehicle size to weight, stating that vehicles over 4,536 kg GVWR needed special mirror systems "suited to their large size." Also, in the notice of proposed rulemaking (NPRM) that preceded the 1975 final rule [39 FR 15143], the agency stated that "if the vehicle resembles a passenger car with regard to its rearward visibility potential, the manufacturer will be free to equip it with a passenger car-type mirror system."

AM General also cites the rationale that the agency used in the preamble to the 1982 final rule allowing convex mirrors on light vehicles, which indicated that the main safety benefit of these mirrors is that they provide "an expanded field of view of the right, rear quadrant area adjacent to the vehicle, thus reducing the need of the driver to turn around to view that area directly."

AM General points out that, while the Hummer's overall size is comparable to other full size sport utility vehicles (SUVs) and pickups, its GVWR is considerably greater. To support this, AM General submitted specifications of other light trucks for comparison. These are outlined in the table below.

COMPARATIVE SPECIFICATIONS FOR FULL SIZE SUVS AND PICKUPS (1999 MY)

Make and model	GVWR (kg)	Length (cm)	Height (cm)	Width (cm)
AM General Hummer .....	4,672-5,488	469	191	220
Full Size SUVs:				
Ford Excursion .....	3,901	576	202	203
Chevrolet Tahoe .....	3,084	507	179	195
Chevrolet Suburban .....	3,901	558	181	194
Jeep Grand Cherokee .....	2,812	461	176	184
Nissan Pathfinder .....	2,336	453	170	174