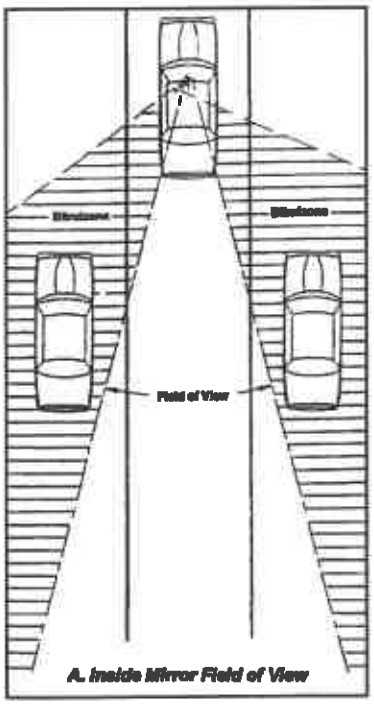
Kansas
RTAP Fact Sheet
A Service of The University of Kansas Transportation Center for Rural Transit Providers

Blind Zone Accidents and How to Prevent Them

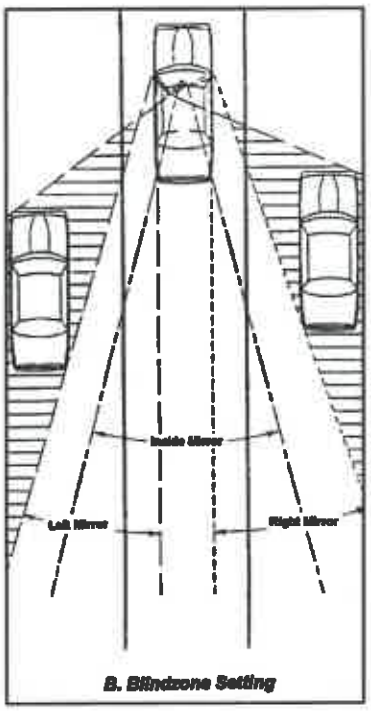
by Jacob Bustad

Nearly every driver is familiar with blindzones; sometimes a horn blast reminds us of their existence. A National Highway Traffic Safety Administration (NHTSA) study indicated that of the nearly 630,000 lane change/ merge (LCM) crashes that occur every year, nearly 60 percent of the drivers involved did not see the other vehicle.

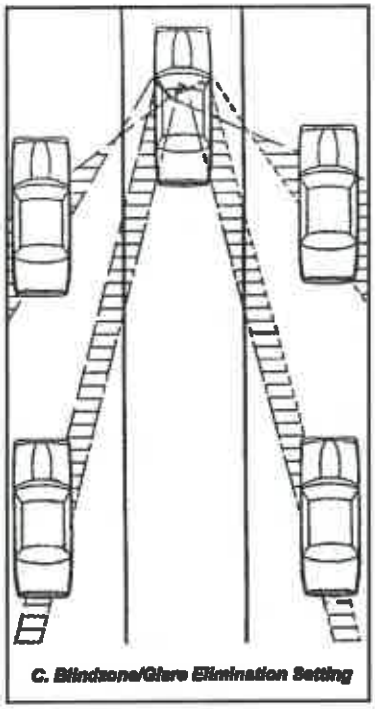
In 1995, the Society of Automobile Engineers (SAE International) published a paper showing a method for setting mirrors that substantially reduces blindzones. SAE also published a public service brochure on the topic.



A. Inside Mirror Field of View



B. Blindzone Setting


C. Blindzone/Glare Elimination Setting

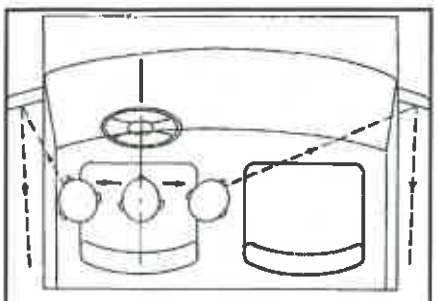
Drawing from these resources, this article will detail the causes of blindzones, and how you can reduce them using correct mirror adjustment techniques.

Blindzones and mirrors

Most vehicles are equipped with one inside mirror and two outside mirrors. The inside mirror provides the widest field of view, and the most information about traffic to the rear. This makes the inside mirror the primary mirror for any driver. In Drawing A, we can see that the inside mirror gives a large field of view, but also causes blindzones in which a vehicle cannot be seen in the inside mirror or in the driver's peripheral vision—the driver must turn and look into the blindzone.

In a bus, the inside mirror may be useless to the driver if the field of view is blocked by passengers or a vehicle is following the bus too closely to be seen.

The two outside mirrors both provide a field of view that is about half that of the inside mirrors. In Drawing B, we can see that the outside mirrors are typically set so that the



D. Setting the mirrors from the driver's seat

sides of the vehicle are just visible. This setting helps to reduce the size of the inside mirror blindzone, but do not eliminate them completely. Blindzones capable of "hiding" a vehicle still exist, which is why setting the outside mirrors is called the "blindzone setting." The driver still must turn and look, and this can be even more of a problem for transit drivers with larger vehicles and passengers in their field of vision.

Drawing C is an example of how blindzones can be substantially reduced. The outside mirrors are now rotated outward to look into the blindzones present in Drawing B, instead of providing a view along the sides of the vehicle. There are now four smaller blindzones.

Correctly setting the mirrors

To reduce blindzones, then, drivers can employ the "Blindzone/ Glare Elimination Setting," or BGE Setting, when adjusting their mirrors. The basic premise is that outside mirrors should be turned outward by about 15 degrees from the typical setting. This can be done by placing your head against the driver's side window when adjusting the driver-side outside mirror, and placing your head in the middle of the car when adjusting the passenger-side mirror. Drawing D shows how this process works comparison to the traditional setting, in which a driver adjusts mirrors while sitting in the normal driving position.

To test the new settings, watch a car as it passes you. It should appear in the outside mirror before it leaves the inside mirror, and appear in your peripheral vision before it leaves the outside mirror. Blindzones have been substantially reduced.

When changing lanes, you should first look in the inside mirror for vehicles approaching from the rear, and then look at the outside mirrors to see if a vehicle is approaching from the side. If you can see the entire front of a vehicle in the inside mirror, and that vehicle is not gaining on you, it is safe to change lanes. After passing a vehicle, wait until you see the front of the vehicle you just passed in the inside mirror before changing back into your original lane.

The BGE mirror technique can be a little trickier when used in transit vehicles, especially when trying to reach the passenger-side mirror from the middle of the vehicle. If it's too far to reach, scoot closer to the window and adjust the mirror, then double-check the view by moving back to the middle of the vehicle. By correctly setting the vehicle's mirrors, both blindzones—and the potential danger they cause—can be minimized. Properly adjusted mirrors, frequent checking, looking over your shoulder to be extra sure, and moving your seat will all help to reduce the blind spots and improve safety in your vehicle.

For more detailed information on this technique for reducing blindspots, read SAE's brochure entitled *A Simple Way to Prevent Blindzone Accidents*, available for free download at www.northstarbmw.org/forms/blindzone.pdf, or the SEA paper on which it is based—#950601. Hard copies of the brochure are free (see page 15); the paper is available at www.sae.org.

Drawings courtesy of SAE International—dedicated to advancing mobility engineering worldwide. www.sae.org.

Reprinted from the January 2008 issue of the *Kansas TransReporter*, a publication of the Kansas Rural Transit Assistance Program (RTAP) at the Kansas University Transportation Center.