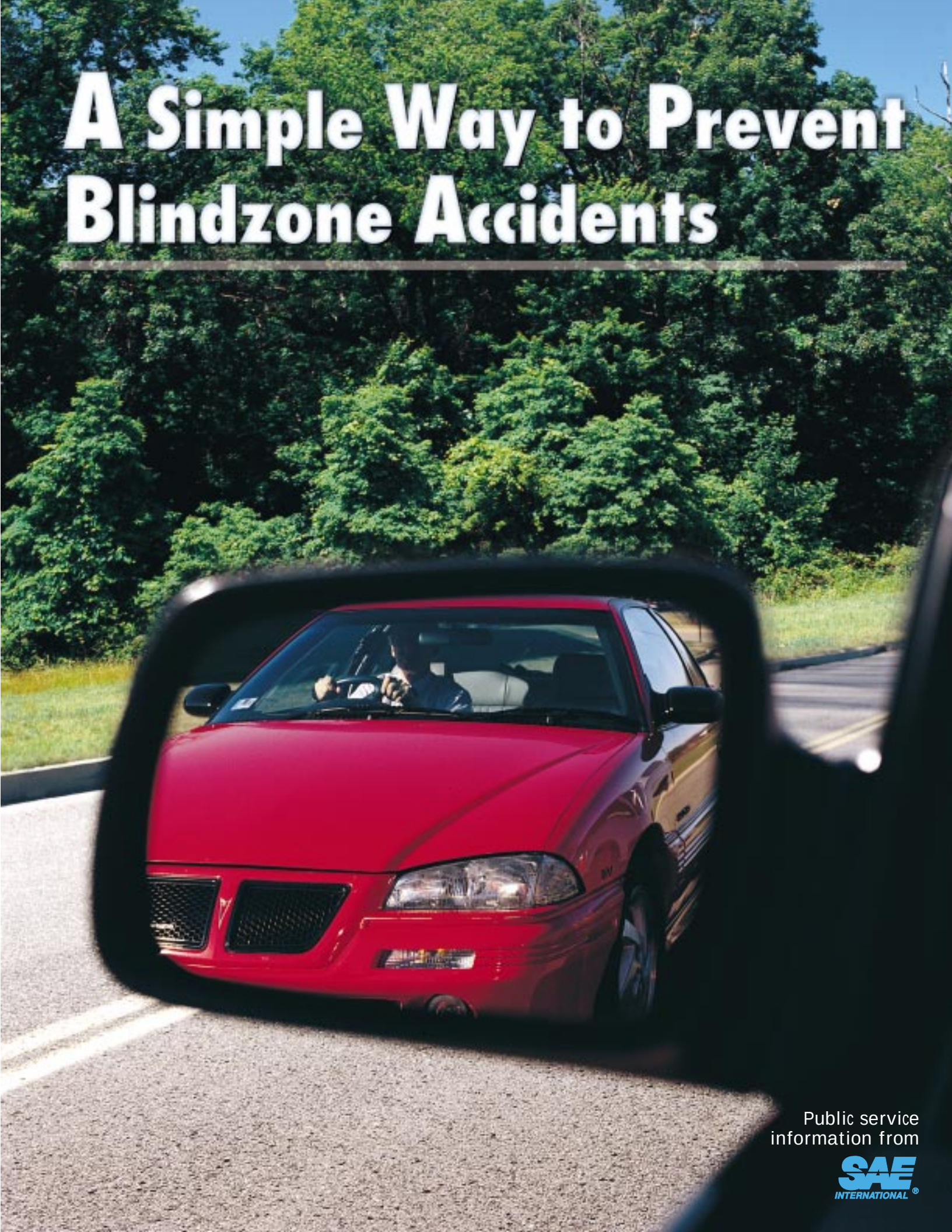
A Simple Way to Prevent Blindzone Accidents



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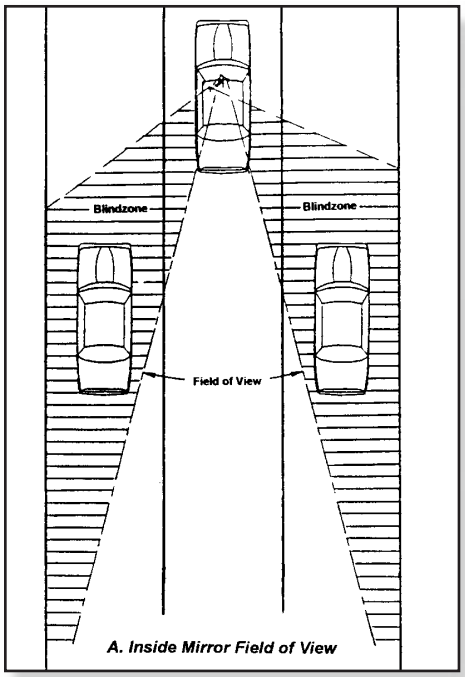
The Blindzone Hazard

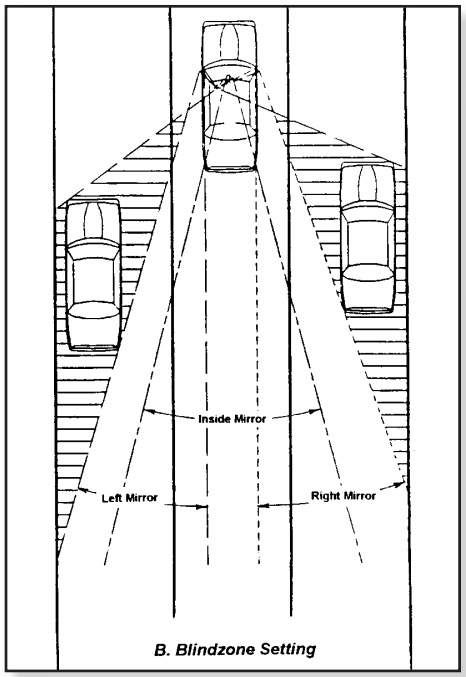
Most of us learned about blindzones in a driver education class, and to look over our shoulders before changing lanes. Your first real encounter with a blindzone was probably when you tried to change lanes and got a horn blast in your ear. The adrenaline instantly kicked in as you reversed your maneuver. Your heart jumped to your throat, and you suddenly felt hot as you realized you had just made a dangerous mistake. You asked yourself, "What happened? Why didn't I see that car? Did I forget to look?"

Lots of people make that mistake every year, and sometimes it results in more than just a horn blast. The National Highway Traffic Safety Administration (NHTSA) has studied a category of accidents they call Lane Change/Merge (LCM) crashes. They estimate there are 630,000 LCM crashes with 225 fatalities annually. A NHTSA study found that about 60% of drivers involved in LCM crashes did not see the other vehicle, and about 30% of drivers misjudged the position or speed of the other vehicle.

All LCM crashes cannot be blamed on the blindzones, but blindzones are extremely important. They are not well understood by the average driver, yet they are involved in every LCM maneuver.



DRAWING A



DRAWING B

How Blindzones Are Created

To understand why the blindzones are important, let's see how they are created. Most passenger cars are equipped with one inside mirror and two outside mirrors. The inside mirror provides the driver with the widest field of view and by far the most information about traffic to the rear. For this reason, drivers should consider the inside mirror their primary mirror. ***Drawing A*** is a scale drawing showing the inside mirror's field of view when it is centered on the road. The shaded regions are blindzones in which a vehicle cannot be seen in either the inside mirror or the driver's peripheral vision. To change lanes, you must turn and look into the blindzones to see if a vehicle is there.

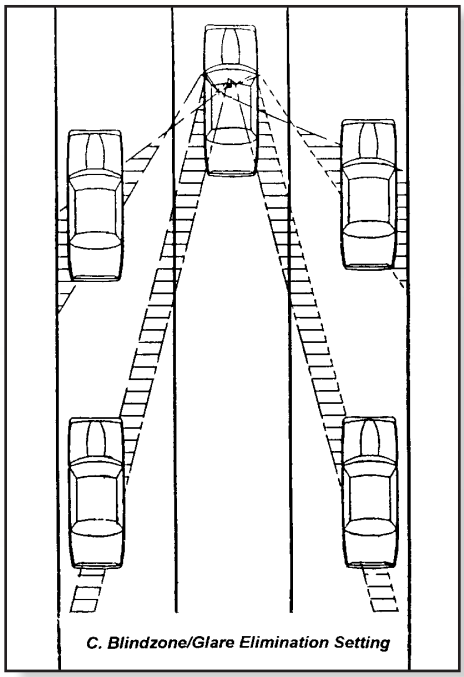
Drawing B adds to ***Drawing A*** the fields of view of the two outside mirrors. These outside mirrors have been set so that the sides of the car are just visible. The field of view of an outside mirror is about half that of the inside mirror. Note that the outside mirrors have reduced the size of the blindzones, but have added relatively little to the field of view seen in the inside mirror. Blindzones capable of hiding a vehicle still exist. With this setting of the outside mirrors, it is still necessary to turn and look into the blindzones when changing lanes. This setting is called the "Blindzone Setting".

Eliminating The Blindzones

Drawing C shows how easily the blindzones can be eliminated. The two outside mirrors are simply rotated outward to look into the Drawing B blindzones instead of looking along the sides of the car. There are now four mini blindzones, but none is large enough to hide a vehicle. With this new setting, it is no longer necessary to turn and look into the blindzones. All that is required is a glance at the outside mirror to see if a car is there.

The new mirror setting has five major advantages.

First, turning to look into the blindzones, which can be uncomfortable and annoying, is no longer necessary.



DRAWING C

Second, only a brief glance at the mirror is required to view the blindzone, as opposed to the longer time required when turning your head. At highway speeds, turning takes your eyes off the road for about 100 feet.

Third, glancing at the mirror leaves the forward scene in your peripheral view, while turning your head completely eliminates the forward view.

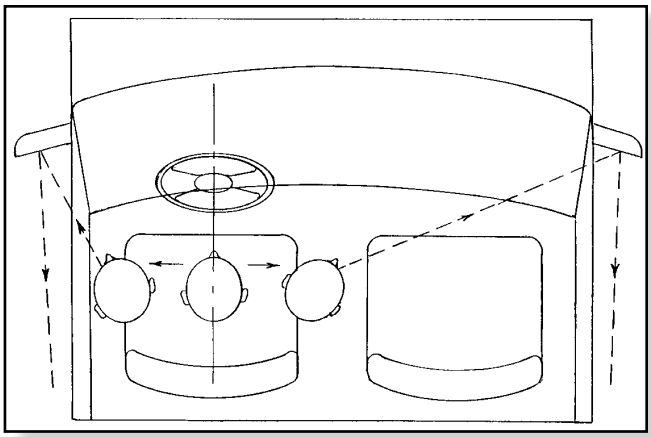
Fourth, the blindzones can be easily included in your visual scanning.

Fifth, at night, glare from the outside mirrors is virtually eliminated. The reason for this is that a following car's headlamps are not visible until the car moves into the blindzone, and at that point, the high intensity portion of the headlamp's beam does not hit the mirror.

This setting of the mirrors is called the "Blindzone/Glare Elimination Setting",or "BGE Setting".

Using The New BGE Setting

The BGE Setting requires turning the field of view of each outside mirror outward by about 15 degrees from the Blindzone Setting. For the driver's side mirror, this can be done by placing your head against the side window as shown in ***Drawing D*** and then setting the mirror to just see the side of the car. Do the same with the passenger's side mirror, but position your head at the middle of the car. You should next check to see that the blindzones are truly eliminated. From the normal driving position, watch a car as it passes you. It should appear in the outside mirror before it leaves the inside mirror, and it should appear in your peripheral vision before leaving the outside mirror. This is your proof that the blindzones have been eliminated and that your mirrors are correctly set.



DRAWING D

When changing lanes with the BGE Setting, you must <u>first</u> look in the inside mirror for vehicles approaching from the rear, <u>then</u> glance at the outside mirror to see if a vehicle is in the blindzone. A good rule to follow when changing lanes is that 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 provided there is no vehicle in the blindzone. This is similar to the rule used when passing, which says, wait until you see the front of the car you just passed before changing lanes.

The Blindzone Setting and BGE Setting are both useful. For most driving situations the BGE Setting is best. Occasionally, the Blindzone Setting is required. This will be true when the rear window is blocked by cargo, or if you are in heavy stop and go traffic and a car on your bumper blocks your rear view to adjacent lanes.

When driving with the BGE Setting, most drivers initially feel a sense of confusion with the outside mirrors. You are not sure where they are pointed; you miss not seeing the sides of the car; and you do not know how to interpret what you see. Don't give up. The confusion will go away, especially if you do a few simple things.

First, understand that the inside mirror is truly your primary mirror. **THE INSIDE MIRROR SHOWS YOU EVERYTHING EXCEPT THE BLINDZONES.** Study Drawing C, and accept this fact.

Second, do not look at the outside mirrors <u>except</u> to see if a vehicle in the blindzone. **THE OUTSIDE MIRRORS SHOW YOU ONLY THE BLINDZONES.**

Third, if you are in doubt about the position of the driver's side mirror, move your head to the side window and check to see that the side of the car is just visible. For the passenger's side mirror, move your head to the middle.

It will take time to overcome your previous habits and accept the new way, but it will happen. Perseverance will reward you with a new dimension in driving which will enhance your safety and comfort.

George Platzer

This document has been produced by the Public Affairs Committee of the Society of Automotive Engineers. It is a non-technical condensation of SAE Technical Paper 950601, which is recommended for engineers and others interested in an in-depth study of blindzones. For bulk copy rates, call Public Affairs at (412) 776-4841, ext. 7344 or fax your request to (412) 776-2103. To purchase SAE Technical Paper 950601 call (412) 776-4970.

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