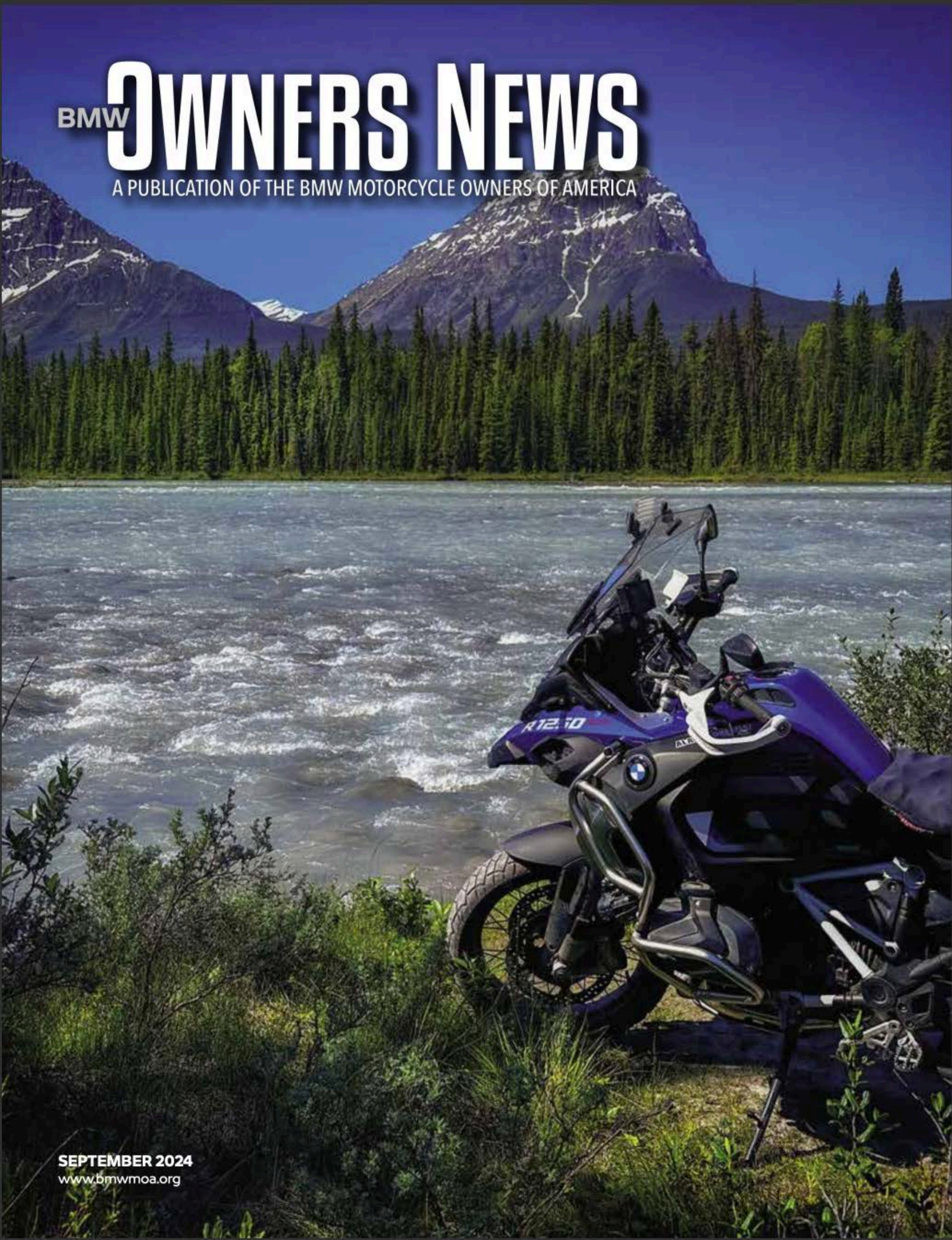


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MOTORCYCLE AND RIDER CONSPICUITY

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The number one cause of motorcycle crashes involving other vehicles is a motorist turning left across the rider's path. In nearly every case, the intruding motorist explains that they "did not see the approaching motorcycle."

How can a motorist fail to see something as large as a modern motorcycle? The answer is expectancy.

According to the National Highway Transportation Safety Authority (NHTSA), motorcycles account for only 0.6% of total vehicle miles traveling in the United States. Thus, motorists have more than a 99% likelihood that the next vehicle they see will not be a motorcycle. Through experiential training, motorists have learned to look for other automobiles, not motorcycles.

It is not that the motorist does not see motorcycles, as our eyes see all. However, it does not meet their expectation of a four-wheeled vehicle, and therefore they may fail to identify an approaching motorcycle.

What, then, can we as motorcyclists do to reduce our risk of a collision? According to human factors research, roadway users respond to hazards based on available information and that they fail to respond at all when the available information is insufficient. Based on my experience as a motorcycle rider and human factors expert, conspicuity is key to increasing the information available to motorists. As motorcyclists we need to take responsibility to make our presence on the roadway more obvious.

Many opportunities to improve conspicuity are available, and then generally fall into two categories—audible and visual. Many riders are familiar with the concept loud pipes save lives. While this may be true to some extent, since noise intensity, or volume, decreases exponentially as distance increases, loud pipes are only effective in close proximity. Moreover, the greater volume is actually behind the motorcycle, not in front.

Human factors research teaches that to improve motorists' detection and therefore, avoidance of motorcycles on the road, we can enhance our visual conspicuity by following a few simple guidelines, captured in the acronym CAPLETS, which stands for Contrast, Anticipation, Pattern, Lighting, Eccentricity, Time of Exposure, and Size.

Contrast addresses the ability of a motorcycle and rider to stand out from their environment. For example, a black motorcycle on a dark asphalt surface is more difficult to distinguish than a yellow or red bike, especially under nighttime conditions. The same is true for the rider. Dark clothing makes it more difficult for a motorcyclist to be detected on the roadway.

Brighter colors, especially high-vis yellow or orange, are more likely to create a greater contrast and therefore be more recognizable.

Anticipation refers to the expectation of a given event. When motorcyclists ride together in a group, motorists are more likely to expect and therefore look for additional motorcycles. For this reason, a group riding together is often safer than a solo motorcyclist traveling alone.

Patterns aid recognition by relying on one's past experiences. Obviously, most motorists are familiar with the shape or pattern of a motorcycle and can easily distinguish one during daytime conditions. However, at night the pattern exhibited by a single headlight, may not aid a motorist in identifying an approaching motorcycle. Moreover, at night a motorcycle with a singular headlight may be difficult to distinguish when in the proximity of automobiles with two or more high intensity headlights. Motorcycles equipped with additional lighting that outlines its shape are more likely to be recognized on the roadway both during the day and at night.

The purpose of **Lighting** is somewhat self-explanatory. More lighting means more information for other roadway users. Lighting is beneficial not just at night, but also during the day. The photograph below illustrates how effective additional lighting is in providing information necessary to motorists to recognize the presence of my motorcycle.

Headlight modulators can significantly increase conspicuity of the motorcycle by switching the headlight between low and high beam automatically at a rate of approximately four times per second. Modulators are equipped with a light sensor, which turns off this feature at night. I have personally installed headlight modulators on several of my bikes and can attest as to the effectiveness of this technology.

Eccentricity relates to the viewing angle. When a motorcycle is approaching an intersection, the viewing angle of the rider to an automobile on the right, waiting to make a left turn across the roadway is close to zero. Whereas the motorist at the intersection, unless they are turning their head to look for oncoming vehicles, is close to 90 degrees. There is not much that a rider can do to improve the motorists viewing angle. However, I have found when approaching an intersection at which a motorist is waiting to make a turn across my path, moving my motorcycle side to side within my lane helps draw their attention.

Exposure is critically important at intersections to ensure that no visual obstructions exist between the rider and waiting motorist that could limit the time available to the motorist to detect your

presence. If there are fixed obstructions, such as trees or signage, I will position my motorcycle in a manner to provide a clear line of sight.

If a vehicle in front of or to the right of my motorcycle poses a potential visual obstruction at an approaching intersection, I will move forward or drop back to allow a clear three second window between myself and other vehicles. This will offer a waiting motorist a better opportunity to detect and identify me on the road.

Speed can also negatively affect time of exposure. At greater speeds other motorists have less available time to detect a motorcyclist. For this reason, I advise travelling at or close to the posted speed limit.

Size matters when it comes to conspicuity. Remember that motorists are looking for other automobiles. Larger motorcycles tend to be identified more quickly than smaller bikes, or bicycles. An opportunity may exist to make your motorcycle appear larger than reality through the use of additional lighting, such as LED lights mounted on left and right side mirrors, and/or by the front wheel axle.

As motorcyclists, we are responsible for our own safety and for enhancing our visibility to other roadway users. Hi-vis riding gear, additional lighting, and conspicuous riding techniques are proven methods that alert motorists to our presence and thereby prevent unnecessary collisions. **ON**