

Against the Wind

By Richard Bennett
Blue Knights Southwest Conference Safety Officer



The wind on the plains of Kansas was having its way with me. I was leaning into the cross wind in order to go in a straight line. An occasional gust caused me to correct my line with counter-steering, but I was unable to relax and enjoy the scenery. This was the second day of strong cross-winds I had endured on my BMW RT, and I was anxious to arrive in Dodge City. I was riding with a friend who was on his Harley FLHTC (a "dresser" with a handlebar mounted faring). The wind caused a moderate- distance riding day to become a tension-filled riding chore for both of us. When we arrived in Dodge City, we were physically tired and ready to get off the road.

With riding season upon us again, I was asked to visit this topic by fellow Blue Knights.

Wind from the rear is one of nature's gifts to motorcycle riders. A tail wind allows for an effortless journey with high gas mileage and still air for the rider. Wind in your face is a slow-going, underpowered experience that causes frequent gas stops. Cross-wind is the most challenging and dangerous wind condition.

No matter what you ride, motorcycles of all types are difficult to ride through high winds. Of all the weather conditions I have endured on a motorcycle, with the exception of fog, strong wind presents the most challenge. I can dress for cold, and I can navigate rain, but wind is so unpredictable that it presents a special danger.

The dangers of wind are obvious; gusts of strong cross-winds can push you off line and into serious hazards around you. Think of wind as an invisible river, whose current is swirling around you. Evidence of wind current can be seen in trees, grassy fields and dust. With these clues, a rider can have some warning of what lies ahead.

Because there are many factors that affect us when we ride in the wind, my research led me to what I consider the most reliable source: a publication by David Hough. Mr. Hough is a long-time motorcyclist and journalist who has written a book, "Proficient Motorcycling", published by Bowtie press. Much of what follows is from Mr. Hough's publication.

Since we can't see the air, it helps to understand what wind does around other vehicles and structures. On-coming large trucks can push a powerful "bow wave" towards you, or the wind may swirl around behind the trailer. Be wary of large trucks approaching from up wind, and move as far away as possible to avoid the additional wind blasts. Also, entering

and exiting tunnels create on-again, off-again wind blasts that require you to be prepared to react quickly.

There are some things that exacerbate the affects of wind. The type of motorcycle you ride makes a difference. Mr. Hough uses the term "sails" to describe the motorcycle profile that is struck by the wind. It is here that we begin to understand the dynamics of wind and two-wheeled vehicles.

Think of the type of motorcycle you ride. It has an unseen center of gravity, or center of mass, which has a definite impact on how your motorcycle handles. Your "CoG" is different than other motorcycles, and may change depending upon how you configure your load. Savvy riders keep heavy items loaded low and close to the frame to keep the CoG low. Low CoG is a good thing. (I was once asked by a Judge to point to the center of gravity on a diagram of a "chopper" motorcycle ridden by a Biker whom I had cited; an impossible task which led to the dismissal of the charge.) Having no clear location of CoG, I recommend this theory: Draw an imaginary horizontal "belt line" at the half-way part of your bike. Do the same thing vertically at the mid-point. Where the imaginary lines cross will be very close to the actual CoG.

The design, addition or deletion of luggage and a passenger all contribute to the total "sail areas" on motorcycles. The shape and location of sail areas is just as important as size. A bike with lots of sail area is more susceptible to cross winds. The sail areas, combined with the center of gravity, determine how well you and your motorcycle will navigate in the wind.

You would logically expect frame mounted fairings to cause motorcycles more likely to be pushed downwind. What is not well understood is that, in addition to being pushed downwind, *handle bar mounted* fairings and windshields also cause the wind to affect steering. For example, a large handle bar mounted windshield leaning back behind the steering axis might be more stable in calm air, but will lead the motorcycle into a downwind lean during a side gust of wind.

Obviously, how you load your bike will affect both CoG and sail areas. A top box, passenger, or gear tied high on the bike will all cause the rider to lean harder into a cross wind to maintain tracking.

The way you sit on your motorcycle and reach for the controls also has a major effect on how well you can control your machine in the wind. Ideally, the best position for control in difficult conditions is to be seated on the saddle with the torso leaning slightly forward. Arms should be slightly bent, with hands grasping the hand grips at a comfortable angle. Footrests located beneath your center of gravity make it easier for you to brace against the tank and shift your body weight from one side to the other.

Consider your style of motorcycle ergonomics to anticipate the level of difficulty needed to control your bike in cross winds. What is not so obvious is that when you push on the hand grips, you use your legs to brace yourself. Cruiser-style bikes with forward-mounted foot pegs and high handlebars are far from ideal for steering a motorcycle. Sport bikes have more accurate steering control, but the forward-leaning position can quickly strain shoulder and neck muscles. Ergonomics are always a compromise between control and comfort.

Surprisingly, your clothing can cause increased wind-wander. On my Kansas trip I had my jacket unzipped because of the hot temperatures. The wind caught my open jacket, pulling me sideways, and transferred my body weight to negative handle bar input. That made it more difficult to hold my line. After a gas stop I zipped the jacket so that it was a tighter fit, and that lessened the impact of the wind. The less loose clothing you have flapping in the wind, the less you will have to fight cross-winds.

Even with a perfectly balanced CoG and minimal sail area, rider skill is essential for accurate control. Riders who consciously counter-steer have better control and less frustration in windy conditions. Counter-steering is a technique that is easier to experience than explain. It is momentarily steering the front wheel opposite the direction you want the bike to lean. To lean the motorcycle right, you would steer the front wheel to the left. To lean right, press the right grip; to lean left, press on the left grip (get it?). Just give it a try and practice often. You may not understand it, but you will appreciate the predictable control with less effort.

When riding through strong winds, you must lean your motorcycle into the wind and that may require forceful pushing on the grip. In a strong but steady crosswind from your left, pushing on the left grip will lean the bike left (upwind). Pushing harder on the grip will increase your lean into the wind, and help maintain proper tracking. When the wind suddenly changes, you will need to quickly correct by counter steering to the proper angle.

Your motorcycle may give you some strange feedback from your front wheel when riding through cross winds. The tire's contact patch will be on the side, and not the center since you are leaned over and traveling straight ahead. Riders should concentrate on counter steering and let the front wheel slightly swerve around under the bike as long as you are going in the direction you want.

The most difficult situation is with strong, gusting side-winds. To counteract wind gusts, you must get the bike leaned quickly into the wind. The best way to lean your bike quickly is to counter steer forcefully. If the wind gust increases, push a little harder. Just be ready to push hard on the other grip to straighten up again after the gust passes.

Riding gear is an important component of navigating high winds. When the wind kicks up dust across the road, a good helmet with eye protection is important. Dust and dirt can hit you like a sand blaster, creating discomfort, difficult vision and detracting from your

concentration. I recommend close-fitting riding attire that covers your entire body, much like dressing for rain.

Riding in the wind can be merely annoying if you know how it will affect you, and you have the confidence and skills to deal with it. In some cases the wind may be too severe to continue your ride. Clint Eastwood once said "A man's gotta know his limitations". It is OK to find sanctuary in a local motel, and continue in the morning when the winds have subsided. Your family will be relieved when you call them to say you pulled off a dangerous road, and you will get home safely a few hours later.