

BMMC Rider Training

Group Formation Riding Positions More Risky vs. Less Risky

I. Thoughts about Motorcycle Safety:

1. A Given - Motorcycle riding is inherently dangerous.
2. Motorcycle safety is all about minimizing risk.
3. We can't guarantee a rider's safety, all we can do is better their odds of avoiding a mishap.
4. The 2 Seconds Rule of distance between each motorcycle in trail with another is designed to create a "safety bubble" around each.
 - The safety bubble is nothing more than "space" between motorcycles.
 - Space is your friend.
 - To my knowledge, nobody has ever crashed into a space.

With these few thoughts in mind let's look into the relative merits/demerits of riding side-by-side versus riding staggered.

If you were asked which group formation you thought was more risky, side-by-side riding or staggered, which would you choose? Chances are you'd have to agree that riding side-by-side is more risky simply because of the inherent dangers in riding at highway speeds so close to another motorcycle (next to or behind, it really doesn't matter).

II. Let's look at some and of each formation:

A. Side-by-side *pluses*:

- Looks cool?
- Smaller foot print for the group (but only by a second)

B. Side-by-side *minuses*:

- Loss of maneuvering room
- Loss of situation awareness (requires riding attention of the right track rider to be concentrating more on the "key-off" bike in the left track)
- No longer have the entire lane to use to avoid a situation
- Designed for parade or demo formation to be ridden < 20mph
- Riding so close to another bike has the potential for disastrous results
- One bike down will almost guarantee taking down the other
- Illegal in the state of Virginia (not a misdemeanor, a felony!)
- Generally viewed as a more risky riding position

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C. Staggered *pluses*:

- Have the entire lane width to maneuver in case it's needed
- One bike down has less chance of taking down another
- Each bike can take a proper line through the curve apex
- Better situation awareness (attention is split to a greater degree between other bikes and the surroundings)
- Generally viewed as a less risky riding position



D. Staggered *minuses*:

- Slightly larger footprint

III. However...

We all know that some riders will ride the way they ride no matter the empirical evidence of greater risk (witness the wearing of a helmet controversy). There's no problem with that as long as those riders realize that (a) they are voluntarily accepting the greater risk and the consequences of that action, and (b) they are not the only ones affected by any injury incurred (e.g. friends and family suffer, as well).

Keeping that in mind, the normal formations for BMMC rides is either staggered or single file, both of which use two seconds spacing (see below).

Staggered Riding

Used for most group riding affording a horizontal safety margin – a riding position where the bikes are aligned in each lane track with equal spacing between the bikes ahead but leaving nose/tail clearance between bikes in the opposite track.

1. The rider's attention must be to the front while also taking in the dynamic conditions to his/her side(s) in order to maintain the correct position.
2. The rider in the right track of the lane keys-off the rider in the left track by using visual references, mostly through peripheral vision because his/her main visual attention is to the front. This makes it imperative that the rider in the left track be smooth and consistent in throttle movements.
3. The second bike, to the right of the leader, is positioned 1 second back in his/her track. The third bike (directly behind the leader) is positioned 2 seconds back from the leader, which puts the rider ahead in the right track 1 second ahead of him/her. The 2nd rider sets the spacing for the whole group, as the following bikes will try to emulate the distance that the 2nd

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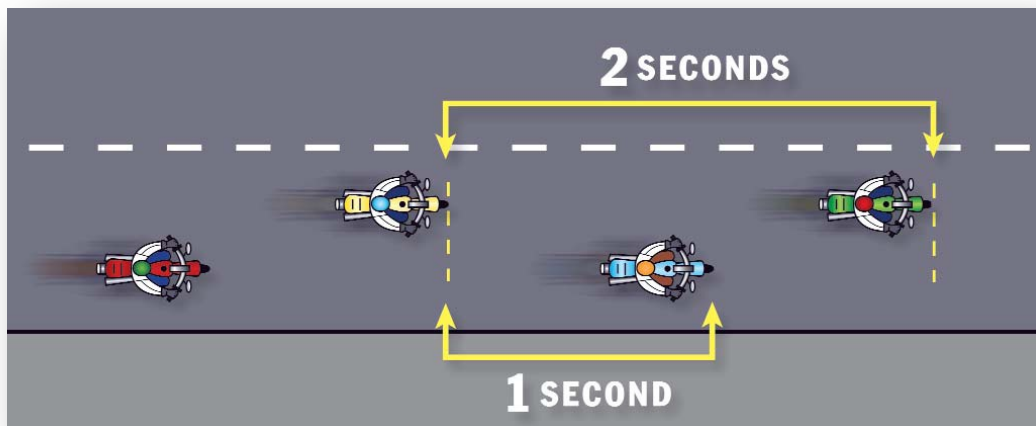
bike is taking on the leader.

4. Should a rider drift back from his normal position, it is imperative that the rider in the opposite track not drift back, too. By maintaining the correct spacing on the rider directly ahead in his track the drifting rider in the opposite track will soon realize his error and regain the correct spacing, thus preventing the group footprint from increasing.

IV. Thoughts about 2 seconds spacing.

As mentioned earlier, space surrounding the motorcycle is what makes the riding formation either more risky or less risky. That also includes the space ahead and behind the motorcycles near you. To illustrate the reasoning for the "2 Seconds Rule" taught in every driver's/rider's education class consider the following verifiable information:

Obviously, this picture is not to scale!



1. Traveling at 60mph you cover 88'/sec. That means in 2 seconds you cover 176', almost the length of three average 60' eighteen wheelers lined up right behind each other!

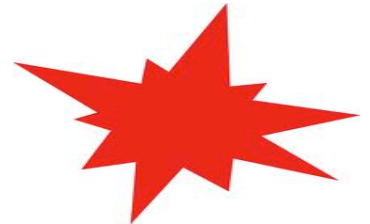


2. It takes .7 seconds to recognize something has happened.
3. It takes .7 seconds to react to what has happened.

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That's already 1.4 seconds and does not take into account the half second time it takes for your hand or foot to apply the pressure needed, for that pressure to be translated into a squeezing action of the brake pads, for the wheel to start to slow down, for the tire to catch up with the wheel in its slowing, or the rubber on the asphalt to create the friction to slow down the bike.

4. High school physics teaches a body in motion tends to stay in motion unless influenced by outside forces. If you want that body to stop, it will take time, which equates to distance, to do it.
5. Stopping depends on the speed of the body and the outside forces (e.g. brakes, road surface, technique, etc.).
6. Stopping distance is equal to the square of the road speed minus the tire friction during the stop (e.g. at 50 mph it takes 2500' to coast to a stop on level ground and a smooth surface. Brakes and other outside influences shorten that distance).
7. Brakes are designed for the maximum operating weight of the vehicle. Weight does not figure into stopping distance because the heavier weight creates a greater down force for tire friction to road surface used in stopping.
8. Any distance less than the two seconds spacing will find you and your bike *IN* the accident, rather than avoiding it.



Hope this helps.