BIKERNET.COM INDEPENDENT MOTORCYCLE NOISE STUDY

In a world of increased levels of constant noise and heightened efforts to curb excessive decibel levels motorcycles take a hit. Bikernet.com, the world's largest website in the custom motorcycle industry, sought to study motorcycle noise against constant environmental disturbances and put the motorcycle exhaust sound into proper perspective.

Motorcycles are unique in that they are the least pervasive of all vehicles jammed onto our roads today. They have the least protection and the best mpg ratings of all vehicles. We noted the obvious, motorcycles lack bumpers, airbags, double-wall doors or steel ceilings, yet take up 1/3 of the space of common sedans, and are more agile than trucks or compacts in avoiding dangerous situations. Motorcycles have but two defensive measures to enhance their agility; visual and auditory awareness. For decades motorists have used the excuse that they are unable to see a narrow motorcycle, so it's okay to hit one. State legislators are currently dealing with that fallacy.

Yet, still between 70 and 85 percent of all motorcycle/motor vehicle accidents are caused by motorists. Plus, the use of cell phones, GPS screens, DVDs, CD players and other major distractions are increasing the need for motorcycle awareness.

Recent statistics indicate that over 80 percent of motor vehicle accidents happened while the driver is distracted by cell phones, eating or other interruptions.

Much like emergency vehicles, the sound a motorcycle makes is critical to its ability to alert motorists of its whereabouts. That became our study criteria and we tested four motorcycles to determine an acceptable decibel level to allow a motorcyclist to be heard. We also discovered a recent court case that demonstrated this contention. Å woman testified she was unaware of the presence of a motorcycle. Sound testing proved her a liar. We measured the decibel levels from 2 feet away from the open end of the muffler at 45 degrees. We also discovered that some states measure decibel levels from as far as 50 feet away. In that case every motorcycle tested emitted less noise than most 18-wheelers.

2003 Harley-Davidson Road King Classic, 1,400cc with mild modifications and a full Screamin' Eagle 2-into-1 Exhaust System:
100 decibels at idle
108 decibels at cruising throttle
116 decibels fully revved.

2004 1200 cc Sportster with full aftermarket Samson 2-into-1 Exhaust system:
100 decibles at idle
108 decibels at moderate rpms
120 decibels fully revved.

Custom 1956 Harley-Davidson, 1488 cc, with custom 2-into-2 exhaust system with modified shorty mufflers:
102 decibels at idle
111 decibels at cruising speeds
124 decibels revved

2006 Softail Standard 1,400 cc, original from the factory:
97 decibels at idle
102 decibels at cruising speed
111 decibels revved

For reference, we measured the noise levels of cars and trucks passing our meter at between 35-45 mph at 10-50 feet distance. Passenger vehicles ranged in the 78-83 decibel range whereas trucks ranged from 90-100 at that distance.

We took each one of these motorcycles and tested them in three traffic scenarios.

Passing: Wherein a motorcycle approached a passenger vehicle with windows rolled up and radio playing (and without). We tested the approach from both sides of the car.

Oncoming Intersection Scenario:

Again we used a late model passenger vehicle with the windows rolled up a radio playing (and without). This time both vehicles approached an intersection and we determined if the motorcycle could be heard across an intersection in this test vehicle.

Cross Traffic: Again we tested whether a motorcycle can be heard closing on an intersection from a right angle from the oncoming vehicle approaching an intersection, when a building exists on the right hand corner.

We discovered that the stock motorcycle could not be heard in the passing test unless the motorcycle was along side a moving vehicle. If a radio was playing at 80 decibels within the vehicle the motorcycle would be nearly undetectable. A dangerous situation for a motorcycle that takes up limited mirror viewing area.

We discovered that with a radio playing the Sportster could be heard at just one car length behind the vehicle. The results were almost the same for the Road King.

With the radio off, these motorcycles could be discerned at two car lengths. A brief span of time in traffic to maneuver if a car altered its direction abruptly.

The custom bike could be easily detected following at 5 car lengths and close to 7 if the radio was not in the equation.

The intersection test was the most difficult because speed and distance are tricky to determine control. The un-altered Harley-Davidson was difficult to hear at all with or without radio interference.

The modified Road King and Sportsters had a fleeting chance of being heard across an intersection to warn a motorist. The only motorcycle that could be easily heard across an intersection was the 1956 Custom with modified exhaust.

The final test was most interesting. Again the stock bike would virtually arrive at the intersection unheard, whereas the Sportster and the Road King were detected for 3 car lengths before the intersection. Consequently there would be a moment of driver reaction time available, at 35 mph, for the driver or motorcyclist to react to a dangerous situation.

Again the custom bike with modified exhaust could be heard from over a block away prior to the intersection allowing the driver to be aware of an approaching motorcycle and make defensive maneuvers prior to entering the intersection.

Our study also identified the consistency of road sound in an industrial area in Wilmington, California, which affords almost year around riding weather. This street has an average of 450 trucks passing in an hour given at 93-100 decibels. An average of 673 cars pass daily during a peak hour at a constant 81-83 decibels and maybe a dozen motorcycles pass by during that hour for a culminated seconds of motorcycle noise at 80-100 decibels.

Our findings point out various considerations regarding motorcycle noise regulations. We are not in favor of disturbing or irresponsible motorcycle noise. We support Daytona, Florida's anti-revving ordinance. Abusive noise use is ticketed. We also support an ordinance that allows ticketing for any motorcyclist who abuses his motorcycle after 10:00 p.m. at night in a residential district. We believe that motorcycles need to make some noise, but that it must be handled responsibly.