

THE PRINCIPLE OF HIGH VELOCITY AIR FLOW

Many bike owners believe the most important features of a high performance engine are horsepower and top speed. They usually look for the highest horsepower

“peak” they can get, which actually sacrifices low to midrange power. But, in *every* race it is the quickest bike, not the



fastest, more “powerful” that wins. It is common to see races where the winner’s top speed is actually less than the loser’s top speed. The key to quick acceleration and high output is the ability to flow a higher quantity of air/fuel mixture into the combustion chamber at the highest velocity, and combust the mixture more efficiently. Fuel cannot burn unless it is evaporated. High velocity aids in evaporating gas or fuel into smaller droplets to stay suspended in the air stream. Big drops of gas or fuel, bouncing around the air stream and exploding against the intake manifold, intake port and cylinder wall make for bad efficiency and even worse power. High velocity is also crucial because all engines have a significant lag between the intake stroke and the flow of air/fuel mixture into the cylinder. The air/fuel mixture simply cannot keep up with the piston.

High velocity is inertia and gives great throttle response with a nice dry crisp crack. On the drag strip or the onramp, acceleration is the key to performance.

Porting the cylinder head is the secret to high velocity air flow. The O’Brien technique of high velocity radii and design achieves two vital benefits—high flow or CFM numbers, and most importantly, 25-30% greater velocity, or feet per second. Henderson Performance can improve all performance heads on the market, including previously ported heads.



Henderson’s porting techniques are specifically designed for maximum air flow velocity.

Dick O’Brien, Director of Racing for Harley-Davidson from 1957 to 1983, member of both the AMA and the Dirt Track Halls of Fame, spent more than thirty years developing and perfecting techniques for porting cylinder heads to increase performance for Harley, NASCAR, and dealerships worldwide. Henderson Performance is proud to carry the O’Brien torch into the 21st century.

HENDERSON PERFORMANCE
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O’BRIEN
DESIGN
PORTING

The Philosophy of Velocity



All Henderson Performance heads are flow tested and recorded to ensure proper CFM, feet per second, and exhaust flow that matches 72-75% of the intake flow.

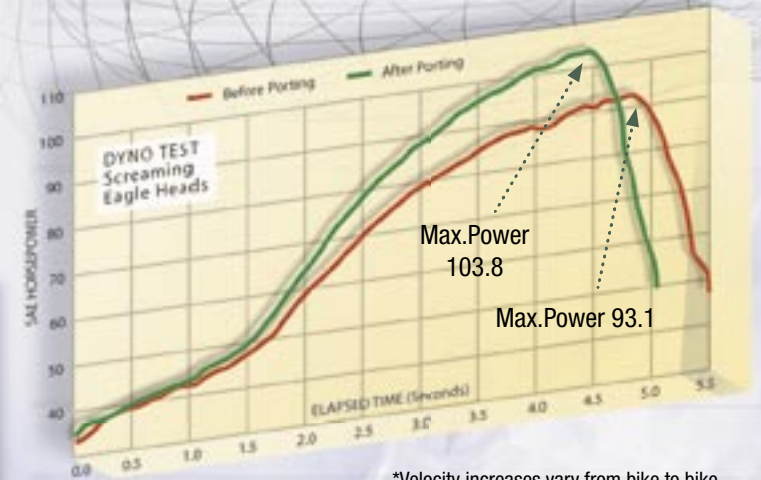
After porting, typical velocity gains average 25-30%*



Porting the cylinder head is the secret to high velocity air flow. But bigger is not always better. Shape is more important than size. Above average air flow can be achieved with other radii or designs, but velocity suffers. The O'Brien technique of high velocity radii and design achieves two vital benefits—high flow or CFM (cubic feet per minute) numbers, and most importantly, 25-30% greater velocity, or feet per second.

Henderson's porting techniques are specifically designed for maximum air flow velocity. At Henderson Performance, every head is hand-ported. All stock cylinder heads are mass produced, and to perform at the highest level, each needs to be individually assessed and treated.

All Henderson Performance heads are flow tested and recorded to ensure proper CFM, feet per second, and exhaust flow that matches 72-75% of the intake flow. Henderson Performance can improve all performance heads on the market—Screaming Eagle, S&S, Buell, etc. Henderson Performance can also improve on previously ported cylinder heads.



*Velocity increases vary from bike to bike



Ken Henderson with Dick O'Brien

Henderson Performance History

Ken Henderson is a graduate of the prestigious Motorcycle Mechanics Institute. After 2 years honing his craft at a respected San Diego performance shop, Ken took a job at San Diego Harley Davidson. He dedicated 6 years to the company learning everything he could about Harley-Davidson, while developing his motor and Dyno-tuning skills.

His performance work steadily increasing, Ken sought not just knowledge, but expertise. In 1995 while attending some additional training at MMI, an instructor gave Ken the opportunity to speak to the legendary Dick O'Brien.

Dick O'Brien, or "O.B." as his friends called him, was Director of Racing for Harley-Davidson from 1957 to 1983. Dick was best known for his involvement with the dominating XR-750 and the Factory Streamliner, which won the land speed record in 1970 at 265.49 MPH. After retiring from Harley-Davidson, Dick spent the next 11 years porting cylinder heads and developing winning engines for Nascar programs, such as the Travis Carter/Skoal Bandit team. After Nascar, Dick continued to port cylinder heads from his shop at home for dealerships around the world.

Over the next 8 years, Ken Henderson and Dick O'Brien formed an incredible bond, brought together by their love of motorcycles and the desire to push the Harley-Davidson to higher levels of performance. In 2001, when Dick decided he needed a protégé, Ken was the first person to come to mind. With that, Ken was on the first flight to Florida, finally meeting the legendary Dick O'Brien in person. At Dick's insistence, Ken moved into Dick's home for intense one-on-one training. Before they got started, Dick said, "I want you to promise me, that if we take this time together, you will improve and beat my flow numbers." Ken assured him of his commitment. During this time Dick taught Ken everything he knew about the principles of high velocity air flow and finally revealed his unique, custom methods of porting cylinder heads.

Faster off the line. Faster to the finish.
Call today for pricing and shipping details.
Porting takes about a week.

The Philosophy of Velocity.

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