



## Note 80B

### “Barrel Turbulence” aka “Tumble Swirl”

Since writing Note 80 the author has been told by Michael Costin that Keith Duckworth used the term “Barrel Turbulence” to describe the in-cylinder effect which he pioneered and which was later called by others “Tumble Swirl”.

P.S. 6 September 2019.

Correspondent Ron Rex has pointed out to the author recently that a written description which *could* have led a knowledgeable reader to understand Barrel Turbulence appeared in *Motor* 12 January 1974 (DASO 206) which described the new Cosworth type GAA engine. This included information supplied by the designer, Mike Hall. As published the crucial part read:- “...*the straight-line flow of gas through the upper parts of the valves creates a vertical swirling motion which ensures good mixing...*”. Missing was the important next step, that on the compression stroke conservation of angular momentum then creates a much fiercer vortex before ignition occurs. Whether Keith Duckworth had authorised this release is unknown.

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