CIRCUIT

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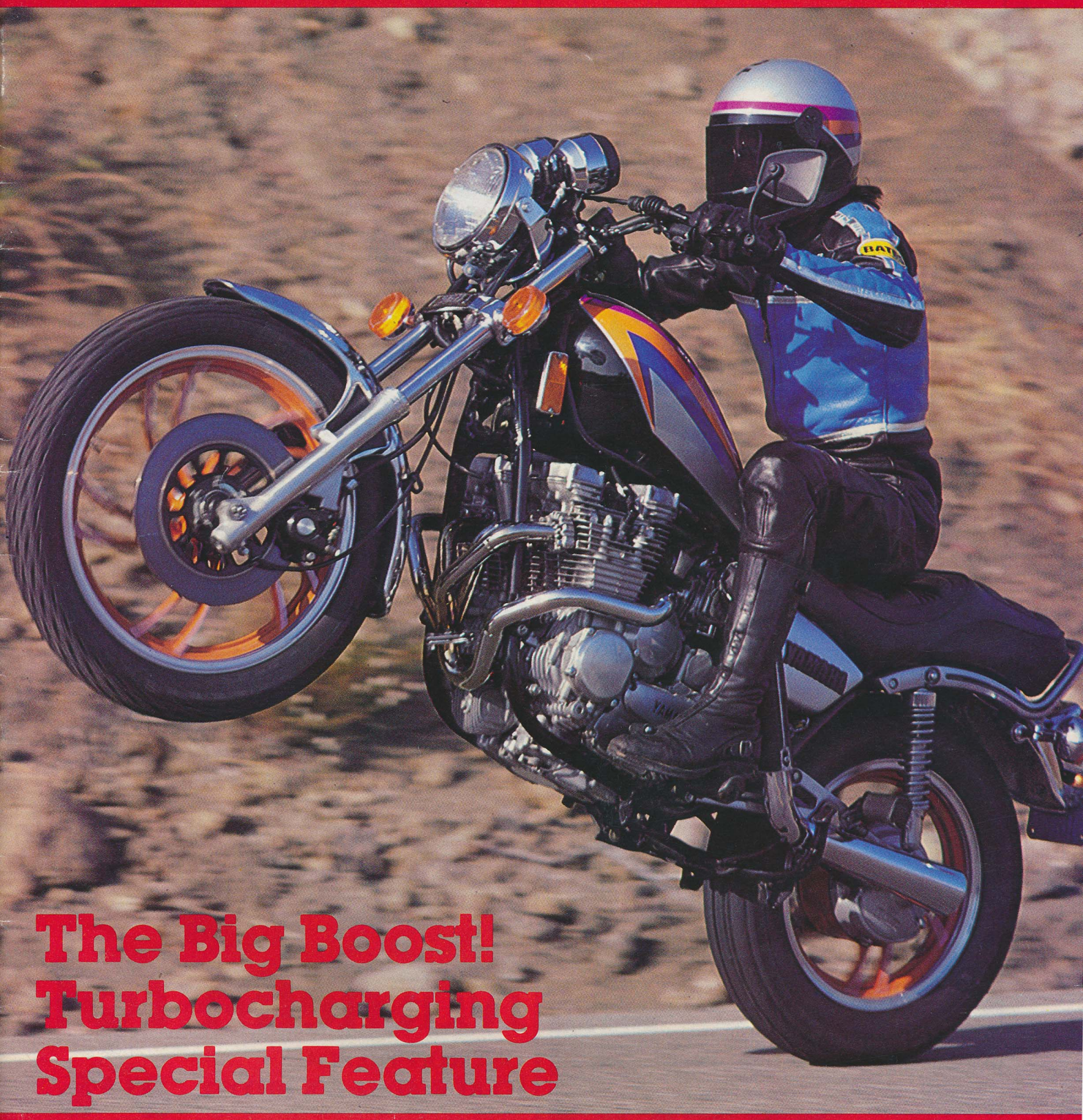


The Big Boost! Turbocharging Special Feature

The Yamaha Rotary

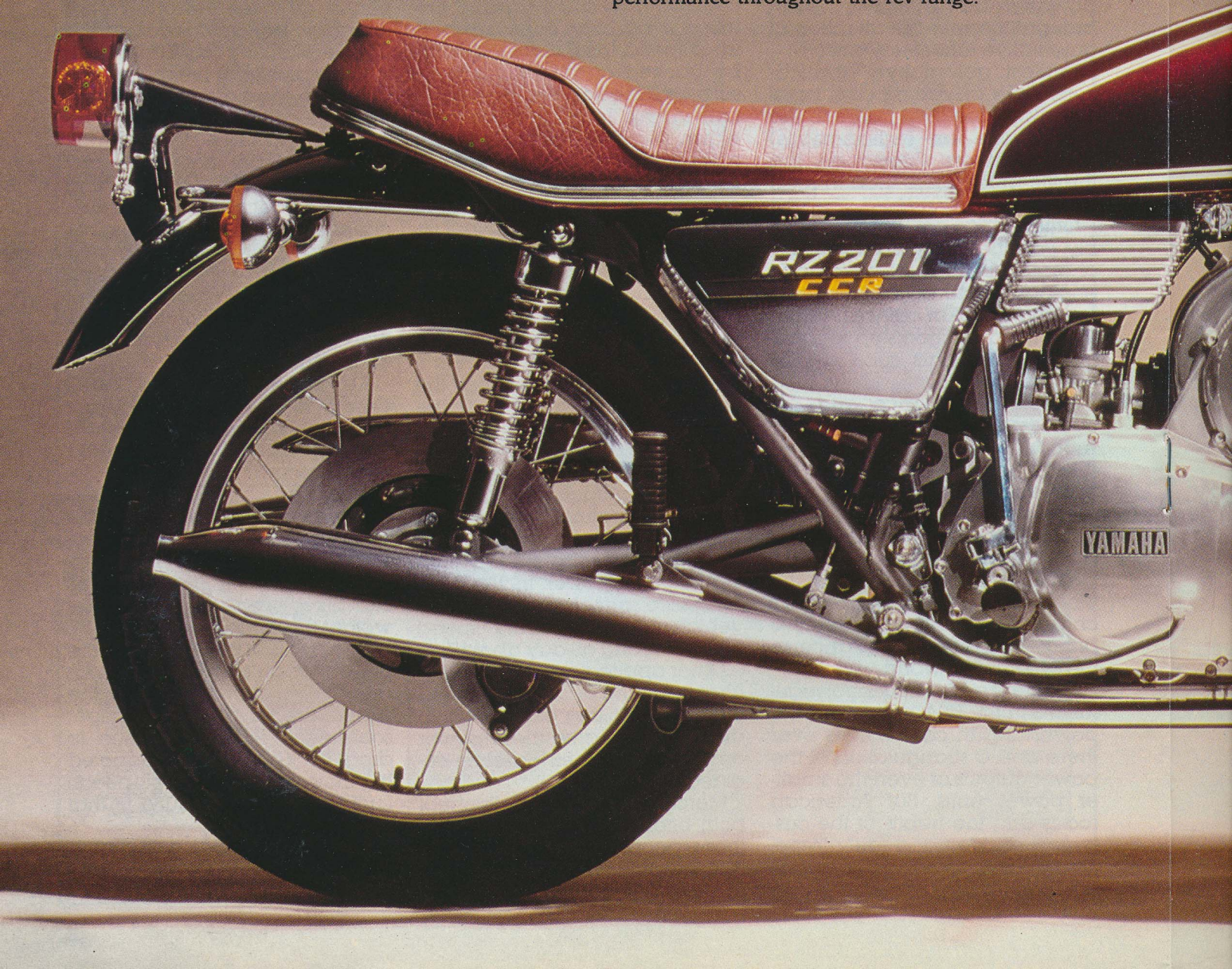
Motorcycle fans who visited the Tokyo Motor Show way back in 1972 were certainly spoiled for choice. All the giants of the motorcycle world had their latest models on show, but the display that attracted the most attention was on the Yamaha stand. Amid the various new production models, ranging from the DOHC 8 valve TX500 down to the prototype "Chappie" moped stood the very latest piece of inspired engineering from Yamaha, the 'rotary engined RZ201'.

Journalists too were drawn to the Yamaha stand by this unique model and motorcycle newspapers the world over proclaimed that its introduction marked the dawn of a new era in motorcycle design.

The RZ201, however, was never intended as a production model. It was simply an exhibition machine aimed at demonstrating the diversity of Yamaha technology. The fact that the machine was built to such a high standard of both technology and design fooled the motocycle world into believing that it was a production prototype.

The rotary piston engine was developed by Yamaha along with Yanmar Diesels who had already obtained a licence to manufacture marine and light vehicle engines from the German patent holders NSU Wankel.

Working within the confines of their patent licence, Yamaha came up with several technical innovations, all designed to make this type of engine suitable for motorcycles. The twin rotary pistons, each displacing 330cc rotated in the direction of the vehicle advance to alleviate any vehicle roll caused by engine torque. The inlet and exhaust ports and the ignition plug were re-arranged in a more rational lay-out than the original design, saving a great deal of time and expense when carrying out routine maintenance. Another ingenious device was the combination port system that featured a periphery port working in conjunction with a side port. The combined effect of these two ports was to increase combustion efficiency over the low speed range while improving intake efficiency at higher speeds, giving improved performance throughout the rev range.



ary Experience

The final version of the rotary engine developed 68ps (Hp) at 6500rpm with a maximum torque of 7.8Kg-m at 4000rpm, and this power output was coupled to a five speed gear box and transmitted to the rear wheel by a silent chain.

A liquid-cooling system was adopted for the RZ201, while another technical innovation from Yamaha took care of engine lubrication. This was the "Charge Cooled Rotor" system which fed oil directly into the mixture from the carburetor to lubricate and cool the rotors. This system, which did away with the oil cooler required on conventional rotary engines, helped to make the power unit narrower, and so more suitable for use in a motorcycle.

As you will see from our picture of the RZ201, it would have made a striking addition to the Yamaha range, and possibly sparked off a revolutionary new approach to motorcycle design. As it turned out, the Yamaha research and design department moved on to other things and, even without the help of the rotary engine, have kept the name of Yamaha to the forefront of motorcycle design.