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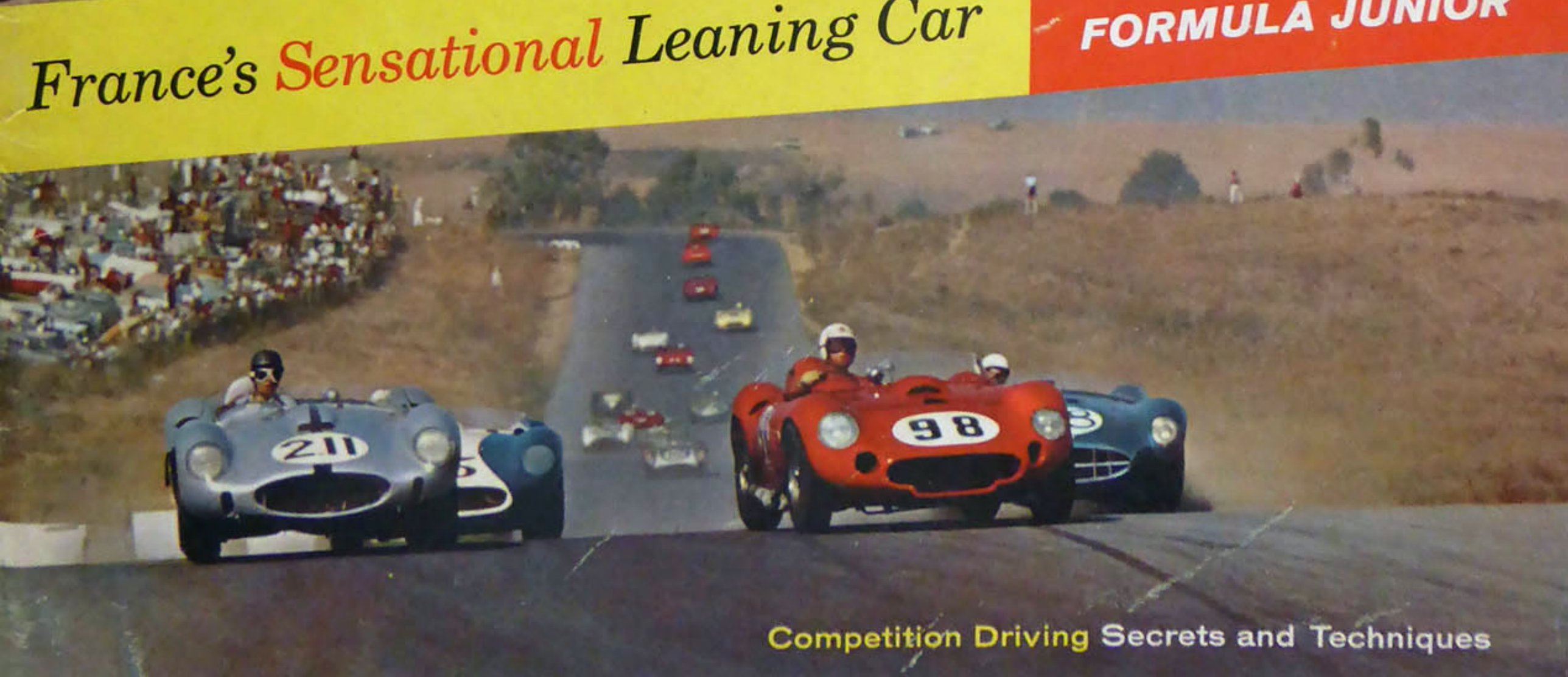
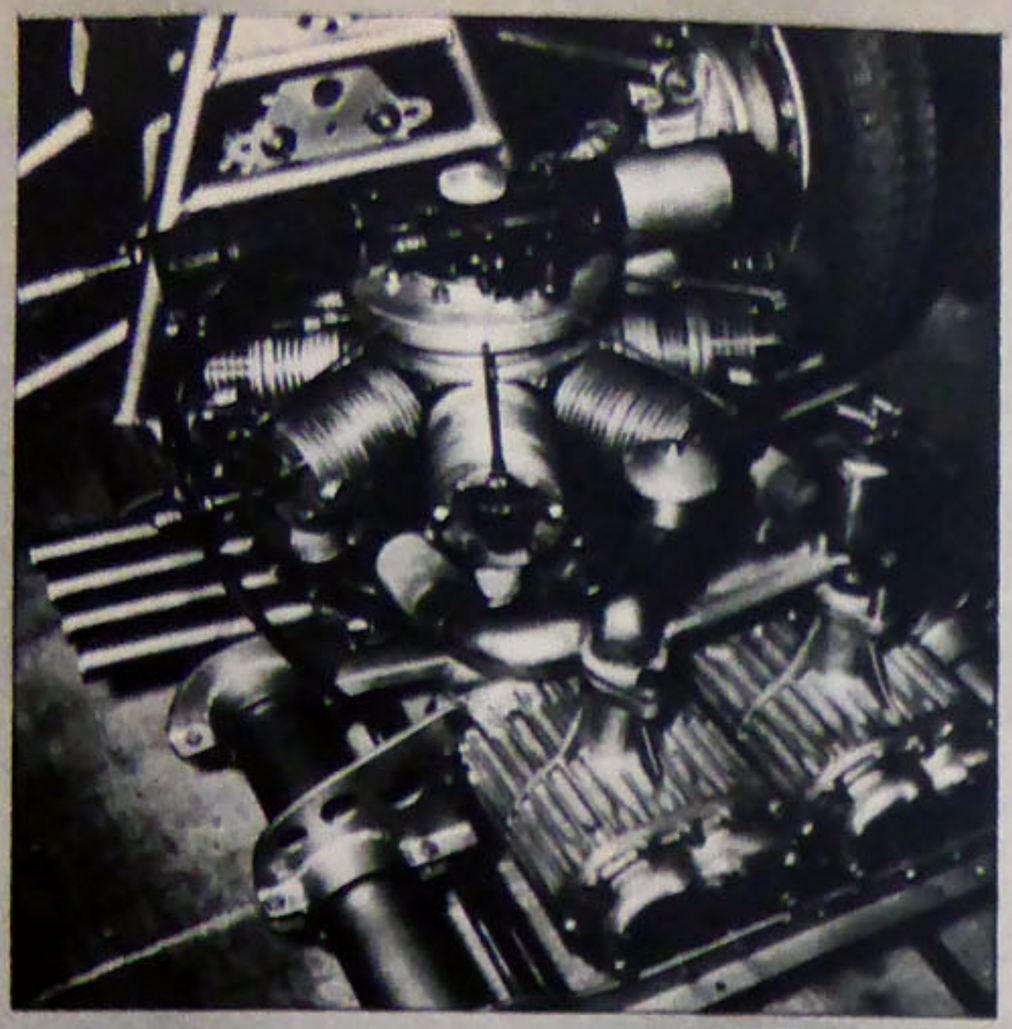
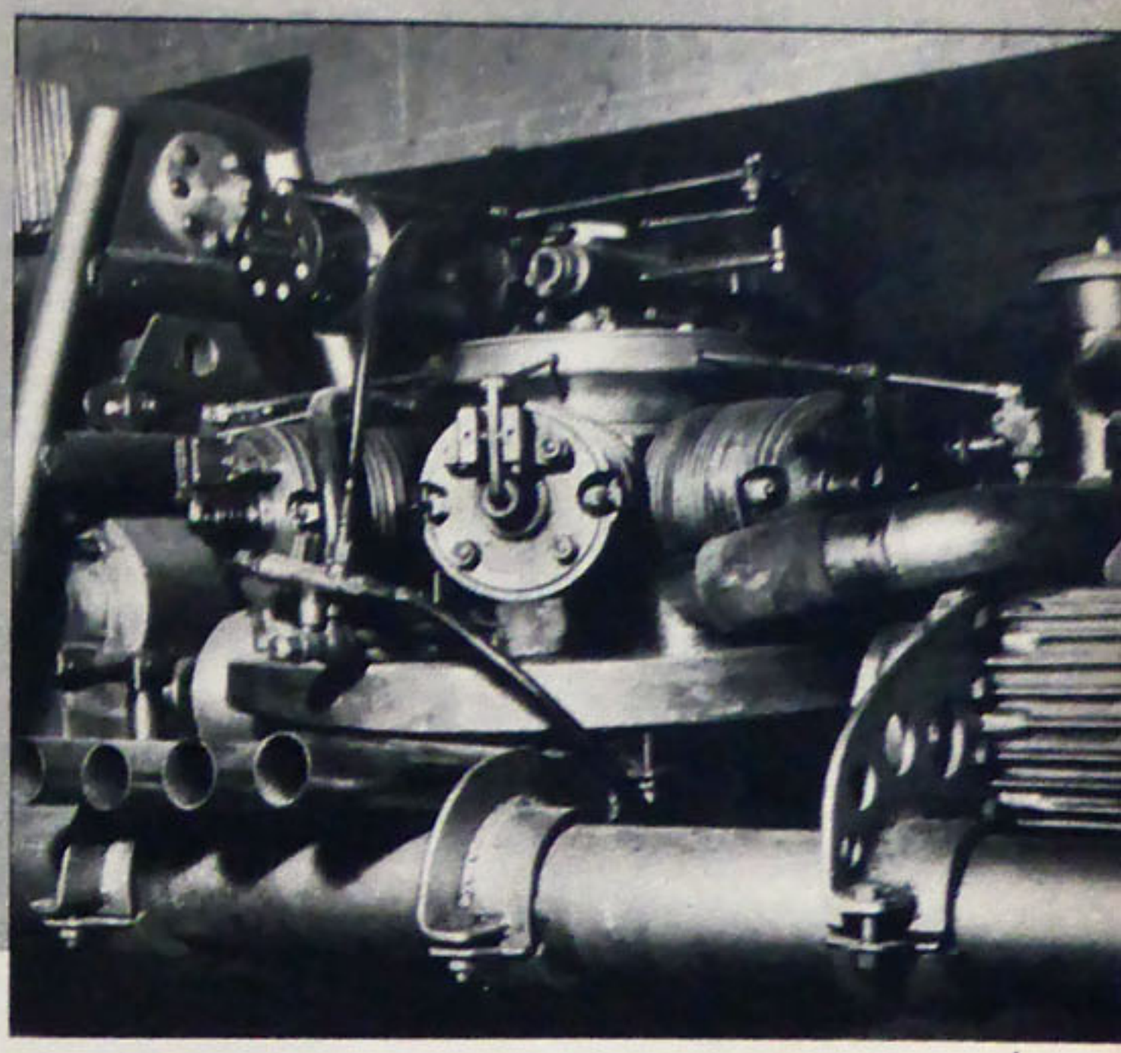
France's *Sensational* Leaning Car



Competition Driving Secrets and Techniques





Above: Two-cycle radial engine was designed and built by inventor Guidobaldi. It is aircooled, supercharged and has two spark plugs per cylinder.

Above right: Heart of front suspension is high pivot point which acts as roll center. Accordion-like assembly is rubber-metal sandwich springs.

Right: Chassis detail reveals large diameter tube frame. Valves on top of each cylinder are pressure relief, sometimes used for two-cycle starting.

Story and photos by Sven-Ake Nielsen

A French inventor tries to make four wheels work like two

The idea of an automobile that will bank into turns has intrigued inventors since the first internal combustion engine was mated to a crude chassis. Many automotive pioneers felt that if only the four wheels could be made to lean at the proper times, in the same way that a bicycle turns, cornering ability would be greatly aided.

Despite experiments and the building of actual cars by men who were certainly not in the idle dreamer category, none of the vehicles could be called successful. (One German machine was called The Wave of Berlin because it was supposed to glide or roll gently into curves. Because the leaning action was hand-actuated, the car did not work.)

Now a French inventor, M. F. Guidobaldi, has designed a single-seater racing prototype which he believes answers problems posed by the unique suspension necessary on a leaning car. Guidobaldi, who was a racing driver and car builder before World War I, has recently retired from a lucrative business building engines for racing boats on the French Riviera.

Guidobaldi's theory is that the most important feature of a leaning car must be a low center of gravity and perfect weight distribution. To that end he designed and built his own aircooled, two-cycle radial engine which he has mounted in the rear. The suspension secret is his patented two-point mounting which hangs the chassis, engine and body from the wheels much like a hammock or ferris wheel seat. Very simply, as the car enters a curve, centrifugal force acts to incline the wheels rather than swing the body which stays parallel to the road. Combined springing and shock absorber action is contained in laminated rubber-metal sandwiches at the front and rear pivot points.

Needless to say, testing of the machine has startled the local rural population as Guidobaldi glides gracefully around nearby mountain roads.

No one can really say what practical applications the leaning car's theories will have, but it is an unusual venture into automotive engineering. Not to be caught napping, a number of British and German car manufacturers have sent engineers to the Riviera to examine the prototype. And who can say but what Guidobaldi is right? Stranger things have happened.

THE LEANING CAR

Leaning car chassis with rear-mounted engine is suspended from axles at points fore and aft much like a hammock. Force of curve causes chassis to swing outward forcing wheels inward.