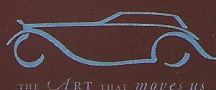


# CONCOURS D'ELEGANCE



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# Mid-Engine Cars

Where Dynamic Ideals Meet Road Realities



by Gary Witzenburg

I'm not sure anyone knows exactly what was the first "mid-engine" car, because it depends on your definition. If it means simply that the engine is packaged between a vehicle's axles, a lot of very early automobiles that were made before the industry generally started hanging the powerplant up front, where the horse used to be, would qualify. And there have been a fair number of "front mid-engine" cars with most of their engine mass concentrated between the front wheels and firewall, for more balanced weight distribution.

My definition, which I believe most share, is a car with its engine wedged between its cockpit and rear axle. This is the best configuration to achieve a perfectly balanced 50/50 weight distribution, which is why pure race cars have been laid out that way for decades.

Why does weight distribution matter?



Think of an arrow, or a dart. They have weights at their tips because the laws of physics dictate that the heavy end always leads. So heavy front ends on vehicles are good for stability – continuing in a straight line – but not for changing direction. The heavier a car's nose, the harder the front tires have to work to make it turn.

Conversely, hanging the engine behind the rear axle – ala' early Beetles, Corvairs and Porsche 911s – turns a car into a dart thrown feathers first. The heavy end wants to lead, so the rear tires (and the driver) have to work harder to keep it pointed in the right direction. The resulting unfortunate tendency to punch a hole in the scenery back-end first contributed to the demise of the Corvair and others – including the rear-engine Beetles. Porsche has largely overcome this in recent years through superb engineering and electronic stability controls.

For a road-going vehicle, however, the dynamically ideal mid-engine placement brings with it ergonomic and engineering challenges that can be difficult and expensive to resolve, including engine cooling, complex accessory drives and cockpit roominess and noise. That is why there are precious few mid-engine cars these days, and most are expensive exotics.

The short-lived ATS, founded in 1961 by a half-dozen ex-Ferrari employees after Enzo fired them, is generally

credited with bringing the first Italian mid-engine sports car to market. Their Franco Scaglione-designed, 2.5-liter V-8-powered 2500 GT debuted at the 1963 Geneva Motor Show, but the company ran out of lire and died after only four or five were completed.

Following the lead of European "formula" race cars, Italian exotic-car makers in the 1960s and early '70s increasingly moved to mid-mounted engines: De Tomaso's Vallerlunga, Mangusta and Pantera, Lamborghini's Miura, Ferrari's Dino GT, Maserati's Bora and others. In the U.S., Ford built a few road-going GT40s while General Motors and American Motors built (and seriously considered bringing to production) prototype mid-engine sports-cars.

The 2007 Meadow Brook Concours features a class of pre-1973 mid-engine cars that includes some very rare and even unique examples of the layout, including the third ATS coupe built, an AMC AMX/3 mid-engine prototype and GM's XP-882/Aerotech concept Corvette, in addition to several others. ■

**Top:** The Lamborghini Miura P400 was a pioneering mid-engine supercar with a 4.0L V-12 engine.  
Photo: MBH Concours Archives.

**Left:** Only five ATS 2500 GT mid-engine coupes were built. Number three was displayed at the 1963 Paris auto show. Photo: Tom Rasmussen.