Geezer Day

Driving at the "Sponsor Appreciation" Event
Held by the SAE University of Minnesota Student Section
on August 19, 2000.

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The Society of Automotive Engineers (SAE) organizes and regulates annual vehicle design competitions among colleges. One of the competition categories is "Formula SAE". The accompanying photo shows the car fielded by the U of M students for the 1998 competition (which is still nearly in compliance with "Formula SAE")... and one of the Geezers being strapped into it.

The Twin Cities Section of SAE is one of many sponsors of the local student efforts.

I attended the Section governor's board meeting wherein the invitation to drive the U of M vehicle was announced. Fortunately, I didn't dislocate my shoulder while raising my hand to volunteer.

Using a few hundred foot-high orange pylons, the U of M students utilized most of a large parking lot (at the U, east of Williams Arena) in the layout of a closed driving course. This course was far more convoluted than I had anticipated, but none-the-less had a straight portion and a slalom section of considerable length. 25 -to-30 seconds was a typical sponsor lap time... but as thrilling a half minute as my heart could stand.

On an annual basis, the sponsored student groups have given presentations to the Twin Cities Section, including static display of their vehicles. Despite having attended several such events, I had no concept of the capability of Uof M's "Formula SAE" vehicle (modified with unrestricted carburetors).

This 480 pound car has a 100 brake horsepower engine self-limited at 13,000 rpm capable of sustaining approximately 1g laterally and able to stop on a dime. (The 2000 competition engine turns 18,000 rpm.) The seat harness is complex - but as you warm up to driving the vehicle - and the outside of your helmet is banging left & right against the overhead rails as you go through the slalom part of the course - you're glad to be tied in well. As the students said while adjusting the gear... if its too tight, its just right. During the drive, there was no discomfort associated with the harness. The steering wheel and accelerator are traditional. Your left foot is on the brake pedal all the time. Aft movement of a secondary wheel forward of the steering wheel does clutching & shifting - 4 o'clock upshift, 8 o'clock downshift, 12 o'clock clutch. Gear shifting is motorcycle-like - with a green light on the instrument panel for neutral. My existent habits called for clutching with the left foot, and the secondary ring rotates with the steering wheel (which changes the o'clocks); these factors led to less-than-graceful beginnings and endings of rides.

The Geezers were instructed to drive the course in second gear... which turned out to be a blessing. By the time the car was traveling at 2nd gear 13000 rpm on the straight away, there was only a fraction of a second left before it was time to brake... and bite down to keep your teeth in place. Downshifting & engine braking - forget it... already powering through the s-turns... questing for the edge of the lateral force envelope... but knowing that I was at the edge of my reflex envelope instead.

At the end of a half-dozen laps, I had experienced far more than my share of excitement... and came in. The student in charge of vehicle engineering asked me if I wanted to drive some more. He only had to ask once. I did my second less-than-graceful departure... with the students' uncomplaining assistance.

Well, they hadn't given me a ticket for the way I'd driven the first six laps, and the senior engineer was going to give me a one-more-lap signal this time out... so I'd be notified if I was pushing things too hard. A half dozen more laps. By the end, I was starting to be able to think about setting up the next half of an S-turn while the vehicle completed the present half. The slalom course became a quick series of helmet clanks. What occasionally felt like very slight losses of traction allowed me to convince myself that I was within a light year of the edge of the envelope. As I exited the track, I looked down at the death grip my hands had on the steering wheel... seeing all my knuckles lined up there reminded me of songs about surfers hangin' 10 on some mighty wave.

Many people drive cars on the street - but usually spend little time at the edge of the performance envelope. Icy roads are an exception, where it isn't possible to be far from the edges of the traction envelope. In driving the student's seriously-carbureted Formula SAE car, my reflexes, not the vehicle's capabilities, were clearly the limiting factor.

Hats off to such superb performance engineering - still beyond my comprehension. And thanks to the students, for their planning, time, skill, energy, and cheerfulness in conducting Geezer Day.