

Raising a Spyder at Home

by

Ahde Lahti

in Memory of Aleksis Lahti

1958 Ann Arbor Michigan

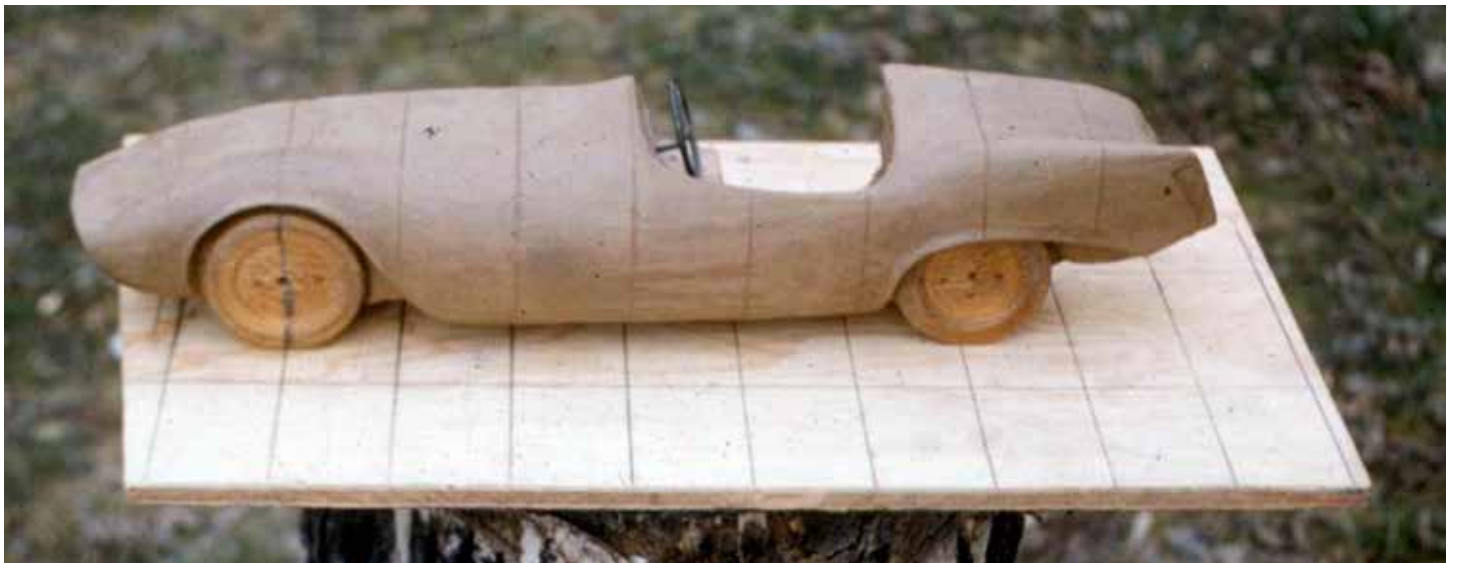
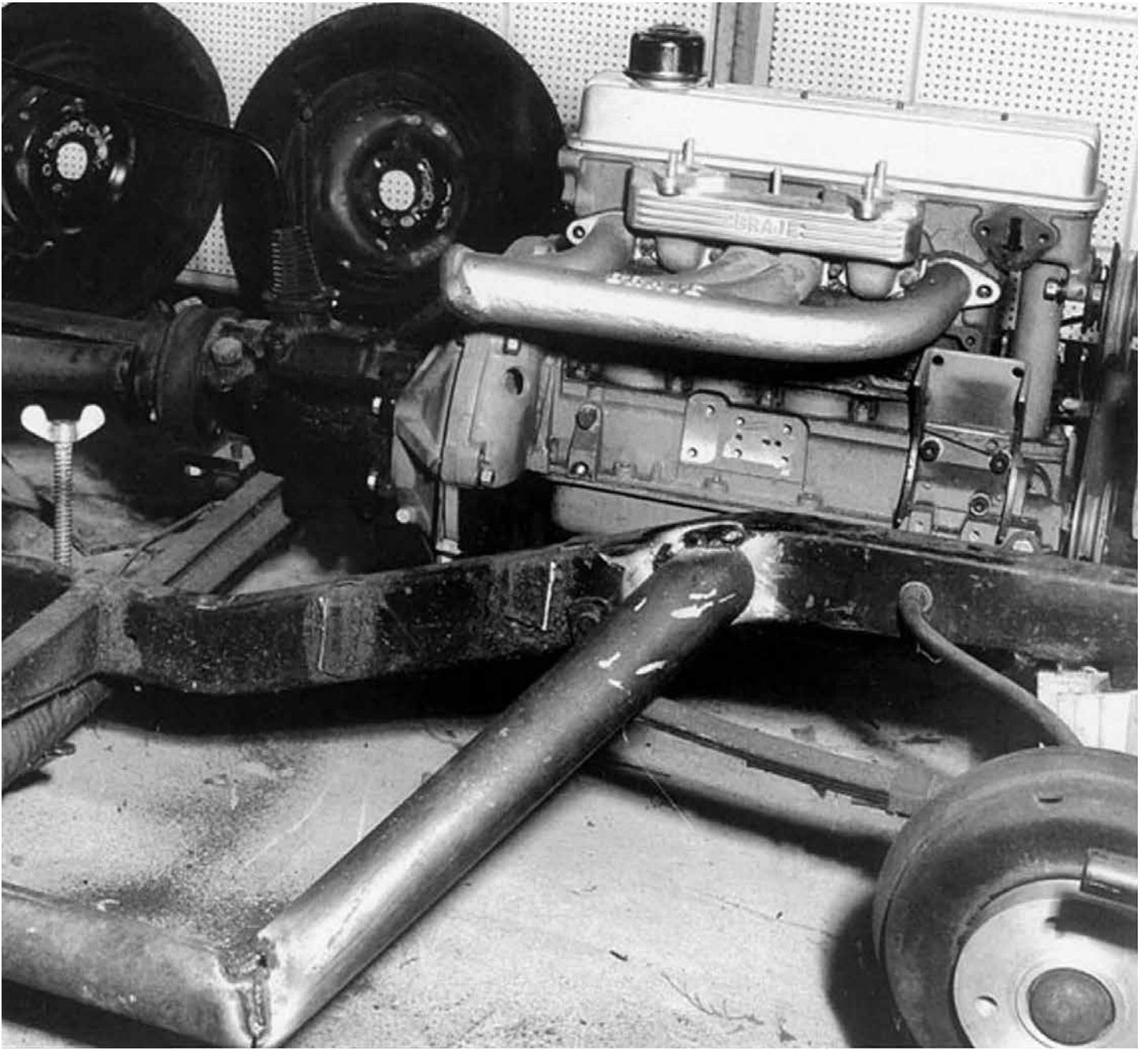




Do the Impossible

This was the town, Ann Arbor, we were the stooges. With an account at "Auto Parts", mom and pop took pity on us, we had desires, many, and the accessories and spark plugs were affordable in 1958. We were a mixture of design and ingenuity, you decide. Elder Aleksis, in college, younger (that would be me, Ahde) in high school. We were on our own. No concept. No direction. But, we did want a car. There is a magical power that four wheels and a few horsepower can add to the libido of teenagers, for that was our lot.

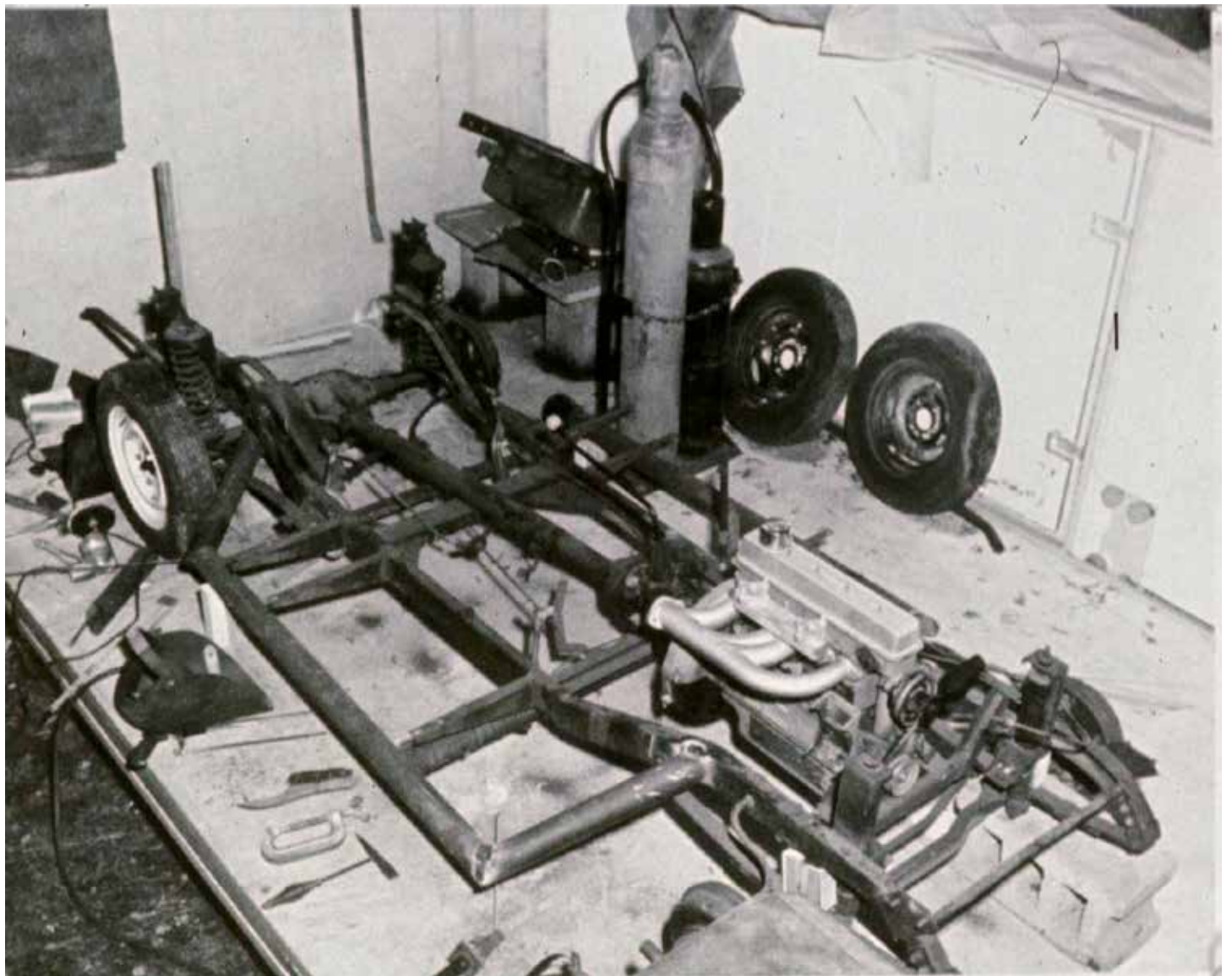
Now, given that the younger, had no plan, no future, he only, always followed what his big brother did: "yes, that's great!", syndrome. I did help, but it was the wrong book. We wrote our future with the "4 wheel rascal". When I left high school "had car". Now that may not be very helpful in



college – especially when I was within walking distance, four miles to home, Traver Road, near the junction of Broadway and Plymouth Roads above a former gravel quarry, filled with falling water and ponds, on the north side of town.

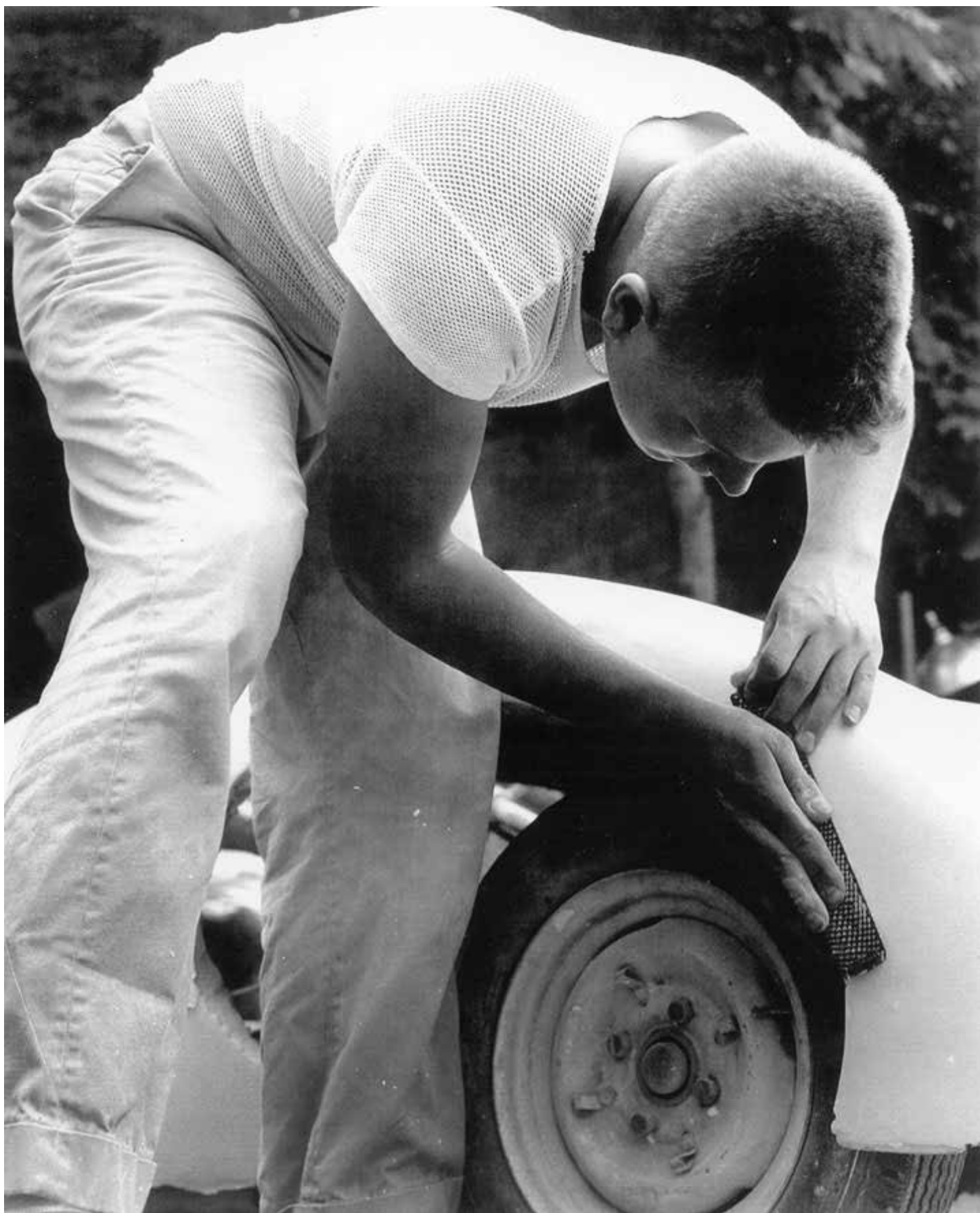
Now why do I mention this, is because there was this strange automobile, a Crosley Hotshot, built from the frame with my older brother Aleksis. It was not a car; it was a lifeline to pull oneself out of the town and drive into the University of Michigan Art School. Yes, I had a skinny wheel 10-speed bike, a scooter, boots, a motorcycle and use of a Plymouth station wagon. But a hand made "Spyder" was a different animal.

Ahde left, Aleksis Right, "Spyder" 1958 (below) I know it had an effect on the incoming first year college experience. Toys are or were the definition of the freshman. Even though I was an okay student, I didn't let any



learning in, I took what I had and wrapped it around everyone, whether they liked it or not. 1961 was not a year where the graduate record exams were used for admission; it was just an experiment that year. If the exam had been anchored into the requirements, I would have been toast. So there I was attending School with Finnish cross-country leather ski boots (with turned up toes) and messing up all my art history classes.





My death was LOGIC! Could there have been a worse student? No! I was just good at ad-libbing responses! Given that the car was a tour-de-force of ad hoc engineering, welding, plaster mockup, fiberglass body (unusual design too), it gave me a head start in all the far flung skills needed at the Art School. The best was that it attracted people



and especially girls. It was a two seater, where the driver or passenger had to climb over the side and into the car. No doors, no windshield, no wipers, no permanent lights, no padding (first iteration) on the Eames fiberglass stacking chairs. Not a bucket seat with leather. Just two slippery plastics with a hole cut in low to drain out the rainwater. You guessed it, no top either. Just a tonneau cover (tarp) with a zipper in the center so one side could remain snapped secure while driving in the rain. Only one mirror clipped on the driver's side. No ignition key, just a toggle switch for on or off. No heater. Well, I should add that I later put in a gasoline heater so my brother and I could drive in the subzero Ann Arbor winter weather. That too was irregular, it had to be turned on and off independently from the motor, leaving a horrible possibility of running out of gas-

oline when least expecting it. Now it sounds like Aleksis didn't do a thing, far from it. It was his concept and design.





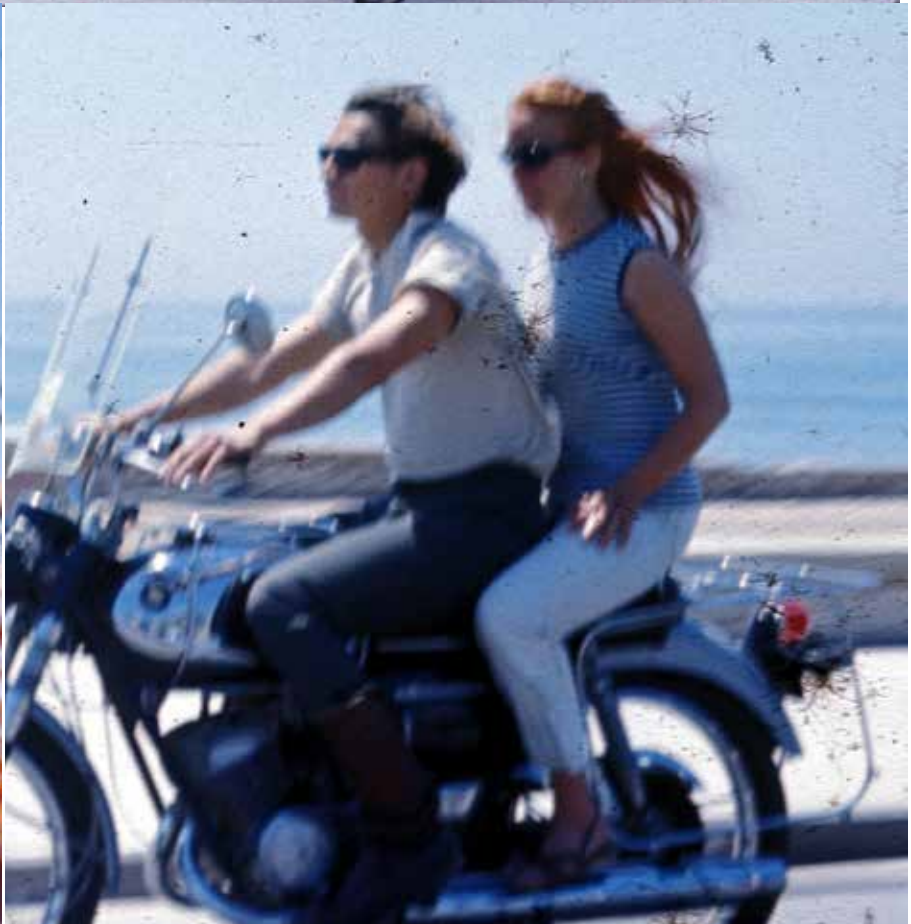
We alternated it's ownership on date nights. The hottest babe got the ride. One day I came back and he mentioned (he too was in the art school) that he was dating "Faith", "Hope", and "Charity" that weekend, these were the girls' names, not a lesson in morals.

Crosley Spyder construction at 1202 Traver Road, Ann Arbor, Michigan. Crosley Spyder with Fiat Engine, transmission and rear axle assembly.

What exactly did Art School offer, being a six story walk-up classroom? Girls. Did I mention that? We entered the Art School, Steve Molitoris, Will Reyer, Dennis Raney and myself, but there were 25 entering girls too! Ratios aren't my strength (4:25), but you can do the math, with your eyes closed and in the dark! I was a late starter; the first nude girl I saw was the model in life drawing class! Now how can that be? Well, a car takes a long time to build and get right. From the 1959 (when started) on the car construction was the primary energy draw.

Steve Molitoris and I eventually enrolled in The Accademia di Belle Arti di Firenze, Italy in 1965. We actually started February, 1966 in the biggest blizzard we'd ever experienced on my 250 cc Suzuki 6 speed motor cycle, traveling by Yugoslavian freighter to Genoa, Italy.

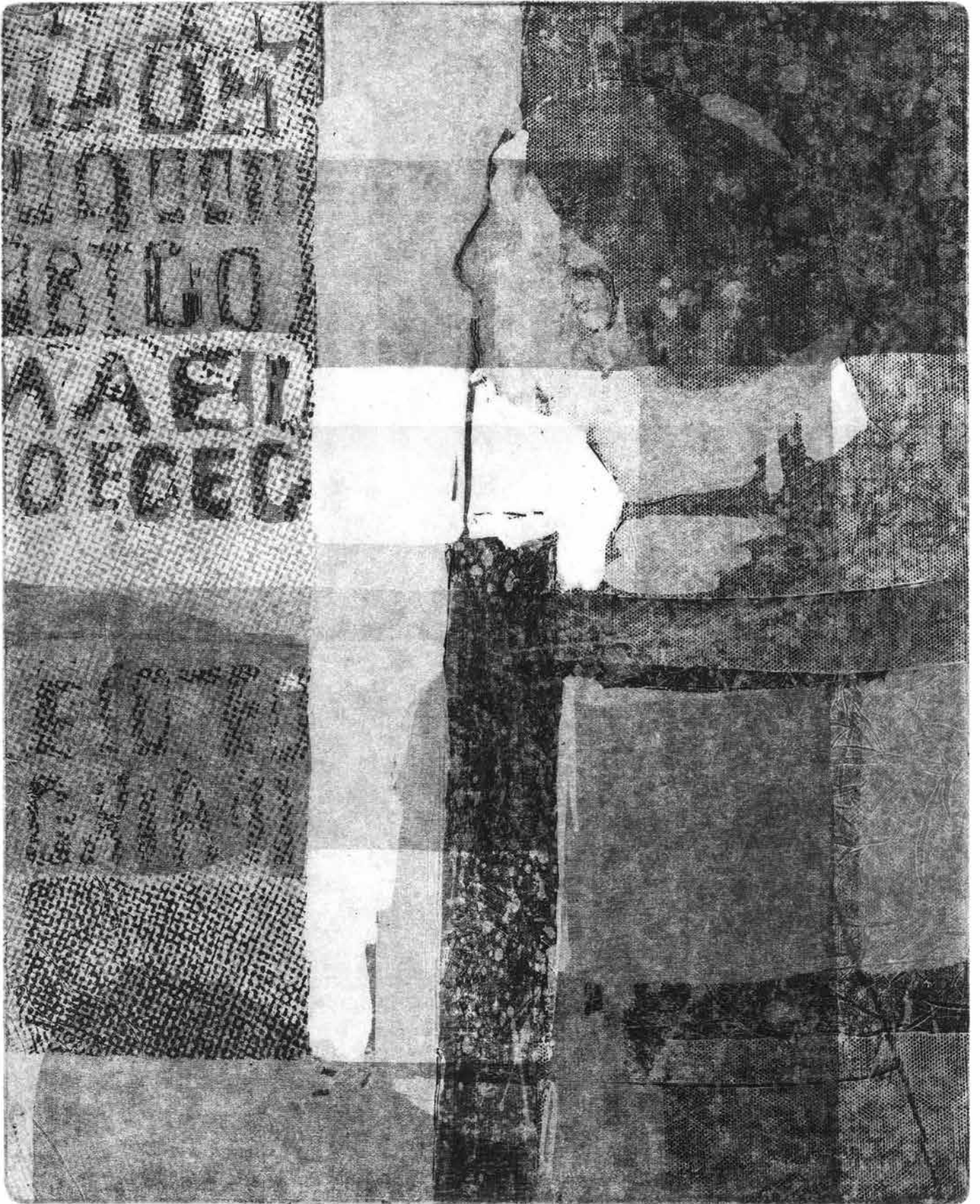
While traveling we met Ganea and





Daphne in Florence and continued on and off for 3 months. In 1969 Ganea and I were married in Los Angeles and are still drinking from the fountain of inspiration we started back then. That's another story to be written this year. I'm still in contact with Steve, Will, Dennis and Hatty Hatch from those Art School days.



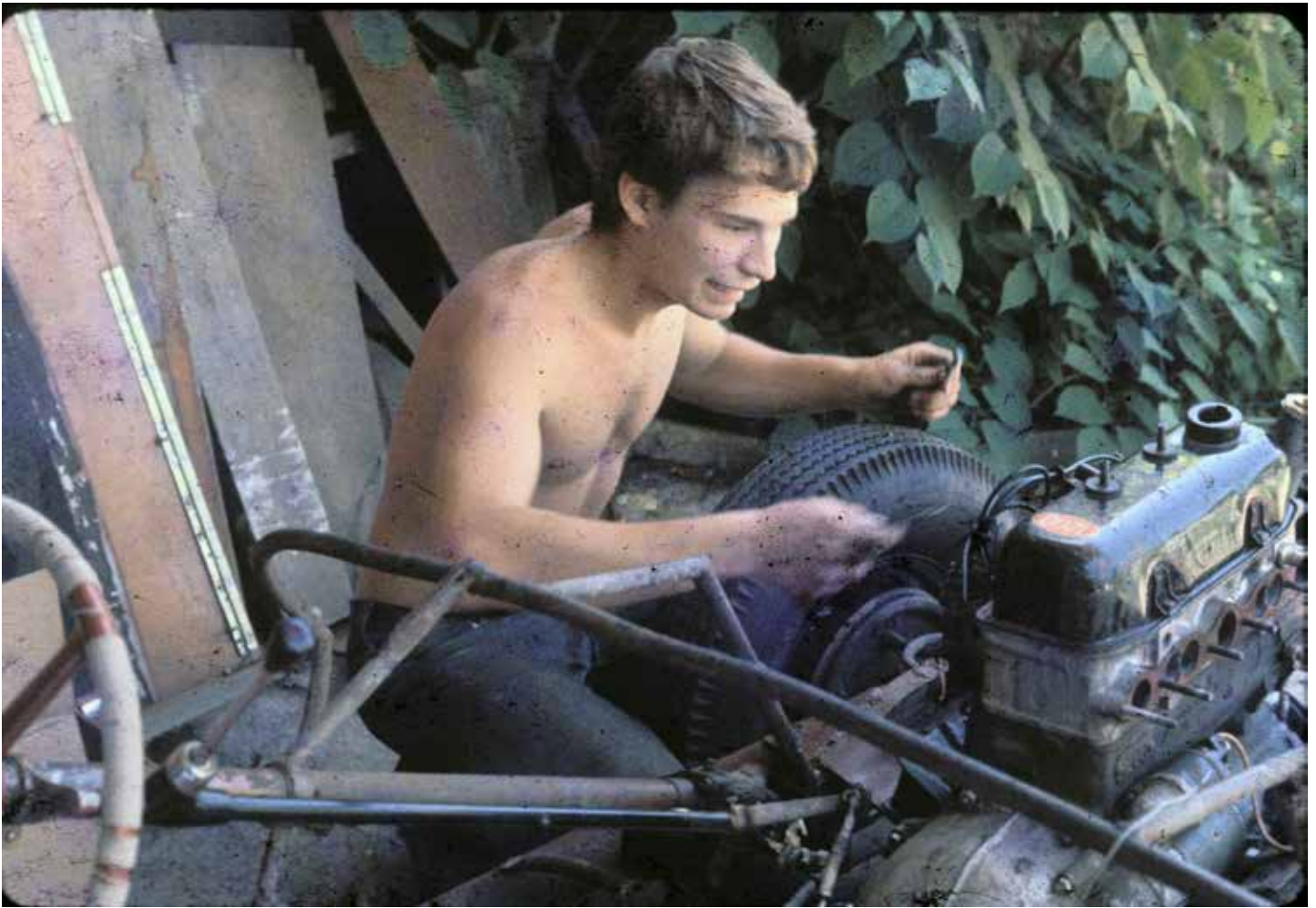


Proof

Posters at Domitelli's Abbe Jatti 66

Art School taught me to survive, had to converse in art historical terms, see every foreign film on the first floor, carry up 50-pound cylindrical cardboard containers of plaster of Paris to the fifth floor. First floor was sculpture where I dragged whole trees that had been chain sawed and





chiseled into new forms. Bronze sculpture was most exciting, having zinc shivers after each pour, hosing down our Levis to keep them from bursting into flames (next to the red-hot crucible). No mistakes, everyone knew what the results would be, hot bronze dancing. Possibly the finest thing was going to Dominick's next door, the place where the teaching efforts of the day were processed! People from all Schools

ended up there. My favorite was the tuna sandwich, which is still served and I still order or make here in Ojai as often as I can. The art students did the film festival posters that were hung on the walls (page 17). Downstairs there was a coal furnace, where one could sit eat and be toasty during the long winters, where the environment was the holy grail of mysterious firebox, boiler, and rusty machinery. We never worried about parking; we were already there (a quick walk). Can you imagine a self-enclosed universe of art, food and history? Art supplies (Ulrich's) were just around the block as were all the books. We were adjacent to the UGLY and Graduate Libraries, where one could get lost in the "stacks". A labyrinth of enormous proportions; with a 7' head clearance; metal grid flooring, 3 floors for every main floor. Before I left, the stacks became closed to all but

staff.

What became of me? Everything, I went on to The Horace H. Rackham School of Graduate Studies (1965-68), started teaching at Cal State San Diego (1969), then to Cal Poly Pomona (1970-72) and eventually was a co-founder of SCI-Arc (Southern Califor-



nia Institute of Architecture, 1973-97). Art School created the power to strike out and do the impossible.

Crosley Hotshot Sports car chassis/
Fiat 1100

Pop and uncle Uolevi had never finished their dream of building a sports car, actually never got to it. Since we wanted a car, pop said, "You just need a body." In the back yard covered in a war surplus green canvas tarp, was the chassis and engine of a Crosley Hotshot. Purchased new, but never started. a bare frame and an engine equipped with dual carburetors, Braje manifolds and finned valve cover.

Aleksis made a clay model (page 4) and we started lowering and widening the frame, while keeping the running gear in alignment until the original frame was re-moved. I don't think the roll bar was welded to the frame yet in this shot. The hardest part was to

try to create a water proof interior lining. The firewall had not been fabricated yet in this shot. There were many solutions that we had, that in hindsight were good and some terrible. When we first started making the additional levers and gadgets to attach the engine to the driver's controls, we ran into problems. When we took the chassis out for a test drive, (without the body) the bumps in the road accelerated the car at intervals that were not controllable. During one of these test drives, we



were pulled over by the police for some reason and on the ticket it said: Body style "none".

The Crosley motor mounts were too spongy, the engine bounce up and down on the throttle arm. Solution, stiff solid rubber motor mounts. Pop (Aarre Lahti) had suggested that when building it, never make a connection that didn't have an adjustable feature to it. So the throttle connection, was realigned to take care of true unwanted acceleration. The jerky clutch engagement also was corrected by the same stiffer mount under the transmission. There must have been some communication between the rough road and the terrible acceleration, new problem, redesign what is unknown. There was no reason to correct the engineering of a car that had never been used. We had the unusual problem of fixing an "unknown". The lights were originally within the front scoop, which turned out to be

too low for the local authorities. They were then raised on posts above the fenders, set to be removable during the daylight hours (1/4" stereo phono plug into the fender top supplied the power). We never liked the solution, but it became the normal.

The Eames stacking dining chairs were eventually covered in Naugahyde and foam, to keep the driver a little more stable. Seat-belts weren't required at that time, but they were installed to anchor the driver and passenger to the car on extreme corners.

Inspired by the new Lotus Eleven (page 43), my brother Designed reverse blisters on the front fenders with elongated wheel openings. Here is the 1/2 clay model Aleksis made as the study for the body. As the ideas developed, we added an asymmetrical roll bar and faired it into the rear surface, which is not shown on this

model. Because we were not designers, we had no drawings and no idea what we were getting into. So after we lowered and widened the chassis, we could only fit the body around the components.

Later when the Plaster mock-up, positive mold, was completed, we then started on the negative molds, which would form the fiberglass body in one casting. We added an 2.5" steel tubing (already purchased by Uolevi and Pop) structure to the frame for strengthening and support of the wider car body which we had in mind. We just started improvising and attacking everything at once. My brother was a freshman at the University of Michigan studying art, while I was still in high school. "We didn't know anything about cars," I remember.

"I picked up what I thought was the generator and was told by Uolevi that it was a starter." The suspension was solid front axle, with half epilep-

tics. The steering was a normal worm drive with swing arm (which for some reason caused play in the wheel when on a straight run). That was a problem we generated, when we tipped the steering post down to lower the driver and passenger compartment. It took a number of years to learn what we had done wrong.

Repositioning the control arm on the splines to accommodate the new angle was all it needed. The rear axle was supported by coil springs. Eventually we installed a heater (a gasoline fired job) that required good memory to shut it down when leaving the car. There was no thought to have it connected to the ignition. Not really very well thought through.

On page 18 you see the fiberglass shell being removed from the three piece plaster mold in the background. The positive mold is in front, which was smooth and painted to give a good surface to the negative molds. The

three separate pieces were held together with a 2" x 4" exterior frame which could be unbolted to separate the pieces. Turn indicator was a lever switch which had to be disengaged after a turn. The gear box (Crosley) was not synchronized, a "crash box". All shifting had to be double clutched up and down. Foot had to be twisted to engage the break and accelerator at same time, to get the revolution to match the next gear. Eventually an in-line long muffler running the length of the passenger side low near the ground. The sheet metal floor was tied to the frame rather than the body so we could detach the body easily. Originally the muffler was located in advance of the firewall. The stock Hotshot (shown below) had earned a reputation for cornering on two wheels — a tricky maneuver for even the most practiced of drivers. We lowered the center of gravity by lengthening the chas-

sis, now all the weight was down between the rails. Next, we added one-inch aluminum spacers on each brake drum to spread the narrow tread by two inches. We built a cockpit lining of sheet aluminum and supported it with steel tubing welded to the frame rails to keep the water from filling the car. The finished chassis rolled on stock 12-inch Crosley rims fitted with wide balloon tires.

If there was a problem, where the car was in the wrong spot, we could lift the rear and reposition the wheels without maneuvering the chassis (without the body).

On one trip to Kansas, the rear tail lights went out in the evening. I pulled into a service station and asked the attendant to help me lift the body off (3 nuts on each side of the driving compartment). We lifted it off, repaired the worn wire and he assisted in putting the body shell back in place.

On another trip, Maryland, the rear tie rods broke from the mounts, again to a welder who fabricated new ones (solid rod this time) which were finally strong enough. Everywhere we went, people helped us out of rough situations.

The mock-up was fabricated directly on the chassis, with all components, covered with expanded mesh and plaster. The plaster was troweled, filed, sanded and finally given a smooth coat of paint. After constructing a three-piece negative mold of plaster with hemp-plaster ties to the (2" x 4" Douglas fir) mold frame as reinforcement ties. The seating area wasn't prepared until the body shell was completed. It of course lifted off and on easily.

We built the fiberglass body and shaped the firewall using bent electrical conduit topped with weather stripping. The original pattern (painted), negative three piece

mold and new fiberglass body, seen in one of the photos below. We learned that when the fiberglass cloth was bias cut, it would take tight bends, creating the reinforcing ribs on the underside of the very thin body shell. Two breather stacks protruded through a small hood (which provided only limited access to the engine). Nine months after we started we completed the 980-pound, Spyder). The car was art on wheels, with a body only two feet tall. We joked that we could file our fingernails by dragging them on the pavement. Doors were unnecessary but getting behind the wheel required a bit of choreography – stepping over the side with the left foot, swinging the right leg over the steering wheel and sliding down into the seat.

Naturally the speedster drew in spectators, and some couldn't resist sitting in the driver's seat. One day as I left high school, I found a curious

senior girl (cheer leader) stuck in the car with no modest way to extract herself while wearing a skirt. I had to lift her out.

Initially, we built the Spyder with a large windscreen and pneumatic wiper which slowed to a stop with every acceleration.

Eventually the large wind-screen was replaced with one on the driver's side only and a hand operated wiper. But driving in the rain was problematic since the car also had no top. A simple tonneau cover kept the passenger's side closed during the winter and that allowed a gasoline heater to throw a little warmth toward the driver. The Crosley engine was exhausted through a straight pipe in which randomly spaced washers were strung on a rod to act as baffles. Stomping on the gas pedal often blew the washers out onto the street, leaving "unbelievable power and noise." As we both hoped, the Spyder

was able to hug the pavement while skidding around corners, but the Crosley break drums finally cracked, circumferentially around the hub.

The last straw was when the vertical tower shaft bronze bearing rotated 90 degrees (press fit) which cut off the oil hole to the overhead cam, burning out all the tower shaft bearings and valve cam caps.

Eventually, when the Fiat parts were fitted in, rear drive chain (Fiat) front Crosley: two different size tires for front and rear. We made an arbitrary choice to carry only the Fiat wheel as a spare. When we installed the Fiat engine and drive train, the drive shaft needed to be shortened (not an elegant solution) was simply cut and welded, not well thought out. The 1100 Fiat engine was larger, so after the conversion, a new taller hood with air scoop was designed and fitted, with "Dzus" 1/4 turn twist lock fasteners.

We didn't know they existed in the aircraft world, so we made them ourselves. Eventually copper brake lines were replaced with flared steel tubing (steel didn't work-harden and crack with vibration). Our hard driving also broke three crankshafts in four years. We had Chromed the original crankshaft thinking it would last better. Wrong, it broke in 4 parts and blew out through the aluminum oil pan. I think it was a problem of alignment in the crank case, which cracked each shaft. Ultimately, we were forced to replaced the Crosley engine with an 1100cc Fiat power plant rescued from a \$125 wreck. The Crosley parts were becoming very hard to find. So the car was fitted with a Fiat engine, transmission and rear axle. The weight went from 980 pounds to 1200, but the horse power doubled. the headlights above were too low (as mentioned earlier), so we put them on the top of the body in front

TINKERER'S DANDY—One year and \$1,300 ago, Aleksis Lahti, a freshman architecture student at the University of Michigan, began work on his "car of the future," and today it is carrying him to classes in fine style. Using a Crosley 45-horsepower engine and an original body design, Lahti built the car into an 85-mile-an-hour speedster. He plans to use the 980-pound midget for sports car rallies.

Autos

types

NOV 18 1959 P 3a - 1H

of the wheels. They were easily unplugged and removed, and they were generally found sliding around in the passenger compartment. November 18, 1959 — In The Press: Aleksis and Ahde's sports car appeared across the nation in newspapers with this photo and caption as follows: "Tinkerer's Dandy — One year and \$1300 ago, Aleksis Lahti, a freshman architecture student at the University of Michigan, began work on his "car of the future," and today it is carrying him to classes in fine style. Using a Crosley 45 horsepower engine and an

original body design, Lahti built the car into an 85 mile an hour speedster. He plans to use the 980 pound midget for sports car rallies."

Eventually, as a gesture of appreciation, my brother gave the Spyder to a friend (Nick Bertoni) who had helped in the early design stages. If I were starting over to build a Spyder now (2020), it would probably look more like Taru's Ford Concept Car, Ghia Focus Concept.

I can look back at the effort we put into it, and say "it is good". Other than all the immediate gratification we received, there was a lasting imprint that affected my design and subsequent teaching direction.

Let me add a caveat to the Taru and the Ghia story: I have never worked for a major company in a design capacity. Other than: Disney, Cinnabar, Jet Sets, San Diego State University and finally SCI-Arc. There was never a friendly ending. As I remember I ex-



GHIA FOCUS CONCEPT CAR, Taru Lahti,
my nephew (in 1992).



ited each with a cloud or a security escort. To be able to withstand the rigors of business has never been my forte. There are the friends, Steve Molitoris, Dennis Raney, Glen Small, Hatty Hatch, my students and others who have survived and prospered to some degree. But I have to take my hat off to Taru, who made it to the top before doing his final bow.

This is a side comment which was discovered in a book about the Crosley brothers. "CROSLEY" book by Rusty McClure/ David Stern/Michael A. Banks

"The year did end on a positive note: on December 31, 1950, the First Sebring six hour endurance run was held at a track set up on an abandoned airfield outside Sebring, Florida. Unbeknownst to Powell or one else at Crosley Motors, a pair of auto enthusiasts, Ralph Deshow and Fritz Koster, entered a converted Crosley Hotshot in the competition. The little sports car, minus windshield and bumpers, with the number 19 painted on its nose and sides with black shoe polish, went up against a field of Ferraris and Jaguars. It won. The Hotshot, able to hold the track tighter through the course's turns than any of the other cars, made only one pit stop during the entire six hours of the race... when an eleven-hundred pound Crosley costing only \$924 takes on a field of two dozen foreign made sport cars, some of them weighing over two tons and selling for up to \$20,000, and whips them at their own type of international endurance driving 'test.'" It was a mouthful. It was a sales pitch. It was all too little, too late."

CHAPTER 33 (The 24 hour Le Mans: the Vingtquarter de Le Mans in France) "On the trip over, they discovered that the Hotshot's headlights were insufficient for nighttime driving, necessary because Le Mans was an endurance race and much of the driving would take place at night... equip the Hotshot with more powerful headlights were too much of a power drain on the car's generator...The two

men decided to replace that as well. It was, in the words of writer Edward Jennings, "a fatal error." The race began: George Schrafft took the first turn as driver. The Hotshot astounded spectators and drivers alike by passing Talbots and other larger cars literally at every turn. The road-hugging ability that had won at Sebring and had so impressed Tom McCahill of "Mechanix Illustrated" soon had the little car performing impressively. Then disaster struck. The generator simply gave out. The car's electric system, running off battery power alone, began behaving erratically. Schrafft was unable to shut the engine off, even for pit stops. Even if by some miracle he could keep the car going, when night fell, things would get worse. He'd have to switch on the headlights, and that would swiftly use up what little charge might be remaining. The Hotshot wasn't going to win, Schrafft realized. It wasn't even going to finish the race. Five hours into the twenty-four-hour marathon, the little car finally died. Had the Hotshot been able to maintain its starting pace, it might very well have won. Even in defeat, the little car - and the way it handled those racetrack turns-made an impression. Soon Hotshots were showing up in races throughout Europe, along with a variety of "Crosley specials," cars built on a Crosley chassis or using a Crosley engine by manufacturers such as Sarti, Nardi, and others. The racing world in America took to the Hotshot too, and to the CIBA that powered it..." Two Hotshots are shown below.



Below is Lotus 11 style that my brother loved. Reverse blisters on the wheel covers.

