Stepping Up

The New Durant Special

By the end of the eventful 1964 season John and I had talked a lot about reliable engines being the key to having a successful and pleasurable time in this road racing. Over the winter the goal was that we were both going to build up Chevrolet 327 V-8's that were bullet proof. It seemed that the answer to this was to go and buy all new "white sheet" stuff and find a reliable engine machinist that could put it all right. The "white sheet" was a GM parts list made up especially for competition, the main component being a short block with a forged alloy crank and rods with forged aluminum pistons and a factory racing camshaft for solid lifters, other parts consisted of special cylinder heads, valves, springs and miscellaneous other stuff. We had already found a head guy, a serious drag race type named Ronnie that did all the necessary work on cylinder heads that when bolted to your engine really made a huge difference. He knew and kept up on all the latest stuff like port shape and size, enlarging the area behind the valve and machining the valve seats so that the valves rested on the very edge for maximum air flow and could also put in coiled bronze wire valve guides that worked super for oil control in high performance Chevrolet cylinder heads. He had all the equipment, charged a reasonable price and during the season would do freshen-up valve jobs on schedule and have the heads ready when you needed them. This was the kind of guy we were looking for our engine service. We also needed an engine machinist and our experience and research told us that the guys who did the machining and setup for drag racing were NOT the sort we were looking for, they only cared about engine life in seconds and we were looking for hours or longer. We needed the kind that built engine for roundy-round racers that needed a lot of power night after night. We heard about this guy called Smitty who ran a local shop, raced dirt tracks himself and had a son that did too. He was touted as the best in town to build Chevies that stayed together and had been doing it for a long time, Ford flatheads before the V-8 Chevrolets. He was a weird old guy but very likable after you got to know him and he didn't rip you off to do this special machine work.

With the engine situation handled I started to think about a more advanced design race car using a tube frame, independent rear suspension, extreme rear weight bias and a hell of a lot lighter using a Chevrolet 327 engine and four speed transmission. The mid-sixties were when a lot of guys were thinking about rear-engine machinery but there were really no suitable transaxles to be had for a big high powered engine, particularly anything that could be considered affordable so it looked as if front engine was the only way to go. About this time there was a funny looking Chevrolet powered sports racing car called the Cheetah that started appearing that looked like all the stuff was crammed in the back. After my successful experience with Pink Lady II with a radical engine set-back, this concept appealed to me. It seemed to me that the key item that limited how far an engine could be moved back in a front engine car was the driveshaft. I got some stuff from the junk yard and found out experimentally that I could make

a driveshaft 5 inches long by sticking two u-joint yokes end-to-end with no spacing in between so I made one and it was the design basis for my new racing car. A long time later I found out that the Cheetah had even a shorter drive shaft than my car as they had used a split yoke half, one on the transmission and the other on the rear end and assembled the joint with four of the hoops normally used to assemble the rear joint on most cars resulting in a single joint coupling the transmission to the rear end instead of a two jointed shaft like I had. I'm not at all sure that I would have copied that design even if I had known about it since to avoid bad vibrations the crank shaft, transmission main shaft and the pinion had to lie in a perfectly straight line since there was not a pair of u-joints to take out the angular velocity difference incurred by an angle between these rotating shafts. I also thought that a little bitty short car had an advantage in that it would be quite agile in the corners and after a little drawing board work I decided on an 86 inch wheelbase with about a 50 inch track width, this damn car looked almost square on paper. Part of the decision for the 86 inch wheelbase revolved around the body selection, the idea of doing another burlap bag lay-up body myself was put away forever along with all the concept of hard labor and expense of a proper mold. Bodies were just a fuckin' pain in the ass! By this time I had spent some time in Jim Broadwell's basement working on the Jabro HM cars that he built for customers. He sold stuff all over the country, parts, engines, converted VW transaxles and fiberglass bodies that were layed up in female molds so they were smooth on the outside like they were supposed to be. One of the body styles that he called the Mark I was designed to fit a front engine HM with an 86 inch wheelbase and he would sell me one of these at a substantially reduced price since I was one of his faithful part-time employees. Needless to say my monster was going to be substantially wider than an HM with all its diminutive parts and wheels but I figured that if I split this body down the middle and added about a foot of width it would work OK The next design project was the frame which in its basic form was a three-dimensional truss, the theory of which I had studied and analyzed in engineering school where I considered it one of the cooler things I had to study in my engineering education. Tubular truss frames were easy as hell to analyze and were hands down the lightest, strongest, stiffest kind of frame in captivity. It didn't take long on the drawing board in the living room of the ranch to figure out that there were some significant problems with the completeness of the tubular truss when applied to race car construction, at least two of the bays had stuff sticking through them that made the truss incomplete resulting in a real compromise on the stiffness. These bays were the engine bay and the cockpit; you could not stick a diagonal brace through either the engine or the driver. A bunch of sketching of devious ways to make an open square stiff with external bracing led to a 1/8 scale model being constructed out of 1/8" square balsa wood sticks from a hobby store. This turned out to be the best design tool to get this frame to the degree of stiffness that I was demanding of myself. Ideas could be tried out instantly and as soon as the glue dried a simple twisting test could tell if the idea was worth a shit and what deflected to make it unsatisfactory. This good ole balsa model got pretty shabby looking from being twisted repeatedly with greasy paws but finally a configuration was come up with that worked and then

the model turned into a three-dimensional drawing for building the actual frame. Since I was both the designer and the fabricator I always thought that a full set of detailed drawings was a complete waste of time so I always quit drawing when I got to a place where I could wing it from there in the shop. All I really needed was the starting points and from there, who needs drawings?

The front end and steering design for this car was pretty much a no-brainer since there was a host of other similar size modified sports cars made with what seemed to be an elegant and simple setup using TR-3 parts, the spindles, uprights, the entire disc brake set-up and the rack-and-pinion steering gear, just using your own design A-arms adapted to the TR-3 uprights.

The rear suspension was another story, after considerable research in magazines I had pretty much decided that I wanted a quick change center section to be able to optimize the gear ratio for different tracks coupled to an independent suspension using the half-shaft as the upper suspension link like the very successful Lotus 19 sports car driven to victory in the Daytona Continental by Dan Gurney. Another sports car using this flavor of rear suspension was the relatively new Corvette Sting Ray that came out in 1963. It looked like I could design the suspension linkage similar to the Lotus 19 while coupling in driveline parts from the Corvette. I bought a Halibrand quick change center section from a speed shop and the pre-war Ford parts that fitted into it from a junkyard. Since the plan was to run a locked rear end with a welded up spider gear assembly like a dirt track car, the old Ford to Corvette mating point had to be the Corvette differential side gears meshing good enough to the old Ford welded spider. Physically checking this out with real store bought parts indicated that this scheme would work just fine. From the Corvette side gears it was to be Corvette all the way to the wheels so I bought from the Chevrolet dealer; inner axles and bearings, u-joint flanges, half shafts with u-joints, and complete outer hub assemblies. Since the Corvette at this stage still had drum brakes, I decided to adapt the TR-3 disc brakes like I was using up front to the rear as well and get the front/rear brake split right using the now mandatory dual master cylinder arrangement with a Durant designed balance bar. The parts that I had to design and fabricate were the side plates for the Halibrand center section which started life as the old Ford axle housings with the outer part cut off and a machined aluminum adapter that adapted the Ford differential side bearings to the Corvette inner axle support bearings and seals. I machined these rather complicated assemblies with their press fits and other complexities on my newly acquired big old lathe at 2 to 4 AM or so to ensure that no one was around to disrupt my total concentration. They flat turned out slick! The other key fabrication task was to hack up the Corvette outer hub/upright assemblies and adapt them to hub carriers that I made out of pieces of the old retired 54 Pontiac frame. The reason for this was because the suspension I had designed was different from the trailing arm arrangement with a single transverse link used by Corvette to an inverted lower A-arm with two track rods on each side to maintain wheelbase alignment. I was also using coil over spring shocks instead of the transverse leaf spring of the Corvette. One of the more clever pieces that we made for the center section was a brace for the ring gear. John Martin was concerned that the ring

gear could deflect too much from the side load of the pinion engaged to the outer periphery of the ring gear and came up with the idea of using a Pontiac roller lifter inserted in an adjustable assembly welded to the side housing. By carefully adjusting the depth of the roller lifter it was positioned so that the ring gear back would lean against the roller which would spin to prevent sliding friction and limit the ring gear deflection. Another problem which cropped up in the final assembly of the center section was that we had to install some of the critical fasteners inside after both the side plates were in place. This was solved by drilling and tapping a large pipe fitting hole in the side plate for wrench access to the inside and using the pipe fitting to close the hole as the rear end vent, cool. If anyone ever told me that I was going to end up essentially fabricating an entire rear end assembly from scratch I would have thought they were nuts but I really did it. The only failure I ever had with the entire home-made assembly was that the pinion bearings started to loosen up and when I took it apart, old man Smith the engine builder who had used a lot of these rear ends in dirt cars showed me how to tighten it up using long bars and then tack weld two nuts together to keep it from ever loosening and that was that.

This project captured John Martins attention to the degree that he became a full time partner on the whole project. Long hours were spent discussing various design ideas as well as the time we spent together every evening from right after dinner until around two in the morning when we knocked off to get enough sleep to be able to function the next day at work as well as another night of car building. We didn't sleep a lot. As the autumn faded to winter it began to be uncomfortably cold out in the unheated dirt floor garage where we labored away on this project every night. John came up with the idea of making a heater than would burn automatic transmission fluid for fuel. Now this might sound strange since automatic transmission fluid cost considerably more than kerosene and certainly is more difficult to use but the idea was hatched by John since the Pontiac dealer for whom he worked did a lot of auto trans work and accumulated a relatively huge supply of used fluid drained from the various Pontiacs that came in for repair and regular servicing. I had bunches of five gallon cans that we had obtained from the Pure Oil people that supplied the free gasoline for the Road America 500 so John took a supply of these cans to work and he and the auto trans man put the drain oil in these cans every day and John brought them home to fuel our furnace. The furnace was more or less experimentally designed to not only work with auto trans fluid as a fuel but we needed to invent a way to get it started since this stuff is not overly flammable especially in cold weather. The heart of the system was a couple of big old clinkers from somebody's stoker fed coal burning home furnace. These things were fused ash and were kinda like porous lava and we put them in the bottom of a 55 gallon drum which was our furnace. Then we fashioned a carefully bent feed pipe out of 3/8" copper tubing that was mounted hanging straight over the clinker pile. We used a needle valve to control the flow of the fluid which came from a modified Jerry can which was our fuel supply tank which we refilled with the five gallon cans that John brought home from work. Cutting a rectangular hole near the bottom of the drum and mounting a stove pipe at the top of the drum and routing it outside completed the

installation. The garage had sliding doors so we ran the flue out between the doors, fastened it to the one we used least and filled in the rest of the gap with stapled on cardboard to keep the wind out, this avoided cutting a hole in the wall. With the facility built, now we had to figure out how to make it work. After considerable experimentation we figured out a lighting procedure that worked reliably well which consisted of opening the needle valve and soaking the clinker with fresh oil, using the acetylene torch to heat the clinker red hot and get the oil going and then adjusting the needle valve to slowly drip the fluid onto the clinker to keep it going. After an hour or so of stable operation this rig-a-ma-jig really worked cool. The whole pile of clinkers and the bottom of the drum became dull red and the oil dripping in was vaporized by the heat and burned with a nice blue flame. This was some kind of bitchen heater and kept our workshop cozy. Adjustment for mild all the way to brutal weather was handled easily by the adjustment of the needle valve. I had a big old yellow cat around the house that lived outside all the time and kept the rodents and birds from desecrating my race cars. He would come into the garage each evening to hang out with us and enjoy the warmth of our heater. Living outdoors caused him to have an extraordinary thick winter coat of yellow fur and one night while he lay sleeping next to the furnace curled around the bottom of the barrel, he suddenly jumped up as the heat had scorched the fur on the side of his body down through the yellow layer to the all white under-layer until he could feel the heat starting to burn him. We laffed our ass off because he looked so damn funny with the big radiused white spot on his side and he was so dumb that he didn't how that happened so on ensuing evenings we had to kick his lazy ass away from the furnace so he didn't burn up his entire winter coat. Another humorous event happened one evening when Uncle Ed and Suze Alsbury showed up all dressed to the nines from some formal event they had been attending. Ed had on a suit and tie while Suze had on a dress, high heels and a white coat. It was about ten degrees outside so we cranked up the furnace so that Suze wouldn't freeze her ass off and settled into some serious bench racing and beer consumption. Awhile later we started noticing some wisps of smoke and realized that the heater was out-of-control, the entire drum and the chimney pipe was bright red, had set fire to the cardboard closure and the garage had sneaked up to probably a hundred degrees. We immediately shut down the fuel valve and flung open the doors to cool things down. The chimney was emitting a haze of black smoke that the wind blew back into the shop through the open doors and deposited a bunch of little black flecks on Suze's white coat which Uncle Ed promptly smeared all over trying to brush it off. Everyone but Suze thought all this was hugely funny which didn't help a thing. A Roger Penske racing shop this place WASN'T!

Since most of the cool racing sports cars of the day were made in England, most of them were right hand drive, which, of course, also put the driver to the inside on a right hand corner which was predominant on the clockwise circuits of Europe. I therefore decided that my new car would also be right hand drive. This was no particular fabrication problem; we just put all the controls on the right hand side. Since the Chevrolet four speed transmissions had the gear shift linkage bolted to the side of the transmission it meant that with right hand

drive one had to shift with the left hand instead of the right hand. We started thinking about this and realized that the conventional H-pattern was ass backwards and awkward for shifting with the left hand and to be symmetrically correct the 1-2 position ought to be toward you with the 3-4 position away, just the opposite of the way it was. John sat down and in his infinite cleverness changed the linkage around to that way in a few hours, a clever lad.

To finish the car up we set to work on the body, splitting the pieces endwise and jigging them up to allow a foot or so wide fiberglass center section to be added. It the meanwhile, I had decided to mount the body essentially the same as the body on the Pink Lady II, that is to make it into a single assembly that simply rests on small platforms welded to the top of the frame and secured using two pip pins on each end. Access to the working mechanisms is achieved by pivoting it up in the rear or by simply removing it entirely. With this in mind, the fiberglass widening process was expanded to end up with the entire body a single piece when it was all cured up. This worked fine and the necessary finishing was done using Bondo which had appeared on the market since the days of the gray burlap body and made things infinitely simpler. We hauled the completed body on the trailer down to the Pontiac dealer where John worked on a Saturday when they were closed, took it into their paint shop and by the end of the day it was gloriously shiny red and white. Our technical abilities were improving rapidly with time.

The seat was a carefully laid up fiberglass assembly with side wings for lateral support of the upper torso. We incorporated a naugahyde liner that made it look better but also had a copy of an idea that I picked up from a visit to the Cobra factory in Venice, California. By making the size just right around the support wings, the squeezing of the upper body on the naugahyde forced the wings in against the body improving the support even more. It was like being clamped into the seat, bitchen.

The fuel tanks were made by constructing a frame from 1” lightweight aluminum angle and sheeting it over with formed aluminum sheet metal riveted on with a sealer between the parts to keep it from leaking. The tanks, one on each side kinda like saddle tanks were rectangular except for the bottom outside which was rounded; easy to form, easy to mount, stout, lightweight and good-looking. What a combination. I decided to ignore the supposed advantages of equal length primary headers and work more for ease of fabrication of the exhaust system. The individual tubes left the heads and were directed parallel to one another down at an angle to a 90° elbow to collect all four together at one point where they entered the single collector that was positioned right under the fuel tank with an aluminum sheet metal radiation shield between to avoid heating the fuel. The collector was where I thought up an idea that could improve the performance. I fabricated a cone-shaped collector with the front the same diameter as the individual tubes and the back 4 inches in diameter with the length back to the exit in front of the rear wheels allowing for a very shallow angle so it functioned like a proper diffuser. The idea was to cause it to function like a diffuser to use the flow to create a low pressure at the collector entrance to sort of suck the exhaust out of the individual tubes. Naturally this was all conjecture

because we had no way to measure anything but in any case it looked cool and made a good story.

The car was finished up with a set of Torque-Thrust magnesium wheels with Firestone racing tires. The front wheels had a hole pattern that matched up with the TR-3 bolt pattern and the rear with the Corvette pattern. When rolled out, this car was a virtual masterpiece, mean, nasty, good looking and fast.

Wilmot

Wilmot gets special mention and its own section because we went there so often mostly because they had races there almost every week all season so if there were no races anywhere else we would head to Wilmot. For awhile it got so that John and I went racing so often that we completely wore out our faithful crew and had to go by ourselves, usually taking only one or the other of our cars with one guy being the shoe and the other the wrench. Wilmot was low key and just a lot of fun to race at.

We had gotten the car ready to roll before we tackled the bodywork so we took the chassis out to MAR to try it out. In those days aerodynamics was not considered an issue at all so running a bare chassis was thought to be the same as the whole deal. A body was just something required by the rules. I drove the car first and was enthralled, it went like hell, handled good and stopped really well. However, when John drove it, he came in and was griping about how much the chassis rolled in the corners, We talked about it some and realized that we had forgotten one very necessary item; anti-roll bars. The old Ford dirt track cars with the stiff axles and transverse buggy springs had higher roll centers than our new four wheel independent suspension and really didn't need anti-roll bars and the Red Warrior had an anti-roll bar in front inherited from the original 51 Ford chassis we started with. For this machine we decided that we could put one on each end by using modified passenger car bars from the junk yard. The installation did not require much modification to the basic chassis and the end result was dramatically improved handling. The four-wheel disc brakes were an absolute joy compared to the drum brakes of the old Red Warrior. I felt as if we had a real winner here and the subsequent experience proved me correct.

With the basic development done at MAR we decided to take off for Wilmot to see how the thing would do in a real race environment. The first thing we noticed was that the car drew a lot of attention, not because it was such a piece-o-shit but because it looked like a cleverly done race car. It cruised through tech inspection easily and I was really pleased at the reception. Wilmot is only 0.9 miles long with PRAY hill and a few corners separating the two straights. The shorter back straight terminates in a sharp right hand hairpin corner that takes you into the longer front straight. This arrangement requires going all the way down through the gear box from fourth to first to get down to a speed where the hairpin corner can be negotiated. MAR has no such requirement so I never realized that the new brakes stopped the car so well that it took longer to shift down through the gears than it did to get the car to the proper speed for the corner and that I was letting off the brakes to give me more time to shift down.

After the practice I thought to myself, *"Hey dummy, you are not maximizing the capability of your super brakes by letting off to have time to shift, you need to get your shifting faster."* I realized that I was pumping down through the gears as fast as I could and it dawned on me that what I needed to do was skip gears to keep up with the deceleration provided by maximum braking. Engine braking was no longer a factor in preparing for an oncoming corner, the brakes were plenty. In the next practice I concentrated on the last corner and found that the technique was to brake in fourth gear until just entering the corner then do a quick heel-and-toe from fourth directly into first, let off the brake and get after the throttle. It worked cool and there was a big decrease in my lap time. Over time I became so used to entering a corner in one gear and exiting in another in no particular sequence that I wonder to this day how the current paddle shift and the in-between progressive shift cars can shift down through the gears fast enough to keep up with the brakes especially in current day F1 where they brake at five and a half g's and go down seven gears!

Another event occurred in the last corner that was scary as hell with the final result lucky as hell. I was headed into the hairpin with my entire concentration on the new braking and shifting technique when there was a pop and a jerk and I found myself flying through the air seemingly gaining altitude as I literally flew into the corner. I ended up landing on all four wheels and was able to come to a stop without any damage, but what the hell was that all about. We got towed back to the pits where I started an investigation into the failure which actually was pretty easy to diagnose. The lower track rod on the right side had pulled in two where the front rod end fastens to it under hard braking and the rod had fallen down, dug into the pavement and pole vaulted the car into the air. Luckily, the balance and whatever aerodynamics of the car were such that it didn't pitch ass-over-teakettle but just took off, flew a bit and landed on all four, whew, pretty damn lucky. My crew, who were located on the front straight with the ski lodge located between the two straights, claimed that my car rose high enough to be visible over the lodge roof from their vantage point. Somehow I think that there was a bit of imagination involved in this claim.

In this and ensuing trips to Wilmot we met another competitor in our class that actually had one of the new Cheetah's, the design of which gave me the idea for my new car. This guy was a plumbing contractor from nearby Hammond, Indiana named Ralph Salyer and he and his friend and faithful helper, Gene Crowe, were among some of the friendliest guys I ever met in racing. They towed the race car on a trailer behind a plumbing truck from his business which had all kinds of goodies on board including a big vise mounted to the rear bumper which I was allowed to use on numerous occasions. Apparently his official company color was dark blue because that was the color of the truck so I guess it was only proper that his race car and all that followed it were the same color, dark blue. Now I have no way of verifying this but I am reasonably sure that Ralph Salyer single handedly started the duct tape craze that rapidly spread through the racing community and ultimately became a world-wide means of sticking stuff together. It seems perfectly logical that a guy in the plumbing, heating and ventilation business building using and installing sheet metal duct work would have an

everyday use for gray duct tape as most likely every other guy in that business did and that 3M or someone in the tape business made this incredibly sticky, thin and strong 2-inch wide tape that was easy to tear off into strips readily available in plumbing supply stores but not necessarily in regular hardware stores. It didn't take long for us and others to notice Ralph and Gene using duct tape for a whole host of things including body repair in the event of a crack or something like that. I think that they gave us a roll, they were that kind of nice guys, and we were amazed at how handy it was. Hell we could have built whole cars using this stuff to fasten it together. Well shortly after we first saw this magic stuff it started appearing all over the racing world, at Indianapolis and patching together toe-up stock car bodies in NASCAR who I think gave it the new name of "200 mph Tape" because they could basically reform a whole fender with the stuff and it would not come off at speeds approaching 200 mph. It also started being called "Racer Tape" or by the unwashed, "Duck Tape". Unless someone comes up with rock-solid proof otherwise I am going to give Ralph Salyer and Salyer Plumbing and Heating the credit for starting what is now a world wide product used in every home around the globe, sports car racing's contribution to an icon of 20th century and beyond.

Wilmot has apparently always been a test track for the Chicago Region since this is sort of their home track and is quite close to Chicago. Once shortly before our first race at Road America in 1963 we had the old Red Warrior up there for a tune-up weekend and Carl Haas showed up with a brand new car and a whole herd of famous American drivers to try it out. The car was an Elva, a lightweight sports racing car that usually competed in a smaller modified class outfitted with a Porsche engine which put it in the Under 2 Liter class in USSRC, the SCCA's pro racing class. After gaggles of folks slathering over it, they put this brand new baby on the track and let all these drivers try it out and then on Sunday for the feature race one of them drove it to an easy win. I guess this was a successful test since it participated in the 1963 RA 500 and won overall by a fairly large margin over a factory Cobra and a whole bunch of other big name big engine machinery. It was kind of cool for us backyard racers to observe how the big guys do it.

Not to be outdone, a couple of years later I tested out a Buick Dynaflow automatic transmission in the Durant Chevy Special at Wilmot. I did not go on to win any big races after that but I was quite successful and learned a lot. A lot of older readers would be aghast that an old hot rodder would ever do anything as stupid as putting a Dynaslush into a race car. Back in the old days there were two basic transmissions that would trigger the gag reflex of any car guy, the old Chrysler two-speed and any of the various Buick Dynaflow's. However, in the sixties, the racing media began to talk about Jim Hall running an automatic transmission in one of his famous Chapparal racing sports cars which were hugely successful. Now Jim Hall never published any papers or went out and told one-and-all any of his secrets, he even was known to put levers and buttons that did nothing in his cars to see how long it took for someone to imitate it, so little factual information was known about his automatic transmission. It was said that the transmission was a two-speed version of the Powerglide used in Chevrolets. I

had a passing idea how most automatic transmissions worked, they were a combination of fancy fluid couplings called torque converters and two speed planetary gear sets engaged by bands and clutches. Unfortunately there was no internet to conduct research on so I had to rely on the paper books and shop manuals in the public library as well as car magazines to bone up on automatic transmissions. I was pretty sure of a couple of things, one, in spite of being incredibly smart and having plenty of money Jim Hall was not inventing his own transmission and two, he was probably in cahoots with the gurus in the “racing and high performance skunk works” at GM. It was strongly rumored that GM was working with some of the better known names in racing like Smokey Yunick, Roger Penske and Jim Hall. From the reports and the logic of the situation I also was pretty sure that he was not using a multi-ratio auto shifting gearbox, he was using an infinitely variable gear change that just seamlessly changed from low speed and high torque to high speed and lower torque. This meant a fancy torque converter, so I looked into the inner workings of various GM torque converters and found out, to my great surprise, that the most sophisticated torque converters that GM was fooling around with lived in Buicks and went under the name of Dynaflow. They had up to five elements with some of the stators being variable pitch and were able to produce continuously variable torque and speed multiplication up near three to one. Now I knew that my trusty Borg-Warner four speed had a low ratio of 2.2 and a 1:1 fourth gear, so a continuously variable gearbox with 3:1 probably would work just fine so I went to the junkyard and bought the correct model Buick Dynaflow that had all the features I was looking for, hauled it home, cleaned it up, took it into the living room of the Ranch and tore it apart to examine the key pieces. It turned out that the big ole torque converter hanging off the front had all the key pieces but the pumps and controls were inside the gearbox part of the transmission. With a little imagination it seemed pretty clear that one could make a lightweight unit out of these pieces with the design effort, some castings and machining but I wasn’t about to commence such an ambitious project without first trying out the concept so I decided to install the entire big heavy Dynaflow into my racing car and see what happened. Fortunately the Dynaflow unit was about the same overall length as the bell housing, clutch and four speed in the car so I didn’t have to move any major components, just adapt the Dynaflow to the Chevy engine since the driveshaft connection on the Buick was the same as on the Chevrolet. Connecting the torque converter to the engine was easy, I replaced the flywheel with an automatic transmission flex plate and it was a done deal. Unfortunately the bolt pattern on the Buick bell housing was different than the Chevy but fortunately the bell housing /transmission unit was shorter so that a spacer was required as well as adapting the bolt pattern to fasten the two together. I made an aluminum plate adapter that fastened to the Buick bell housing with through holes in it that matched the Chevrolet engine block pattern, turned six spacers to the length needed out of one inch diameter steel rod, drilled 3/8” holes in them and bolted the assembly together using long 3/8” bolts. Adapting up the rear engine mount finished the job and we were ready to try it out. It looked kinda funny with that big ole transmission hanging off the back of the Chevy engine on

six spaces about two inches long with nothing but air in there and guys started asking “How the hell is that going to work?” to which I said “Think about it, those one inch spacers are bolted tightly into place and can easily carry torque across the joint using linear forces on the top and bottom or opposite sides of the spacers which makes the connection solid for beam loading up and down and sideways and will transmit torque through the joint easily.” “Well, I guess so if you say so.” to which I retorted smugly “Well I say so ‘cause I’m the fuckin’ engineer around here!” I fired up the car and took it out on the roads around the Ranch to just make sure that everything went round and round and we loaded it up to take it out to MAR for an initial tryout. I did notice in this short functional test that connecting a Dynaslush to a racing Chevy instead of that big ole ancient straight eight Buick made all the difference in the world in the behavior of the car. The old Buicks would just roar loudly and sort of trundle off and the Durant Special blasted off like a striped ass ape. There were no covers over anything so I had to be careful as hell to avoid getting into the exposed torque converter up by my feet and the exposed driveshaft back by my ass but I figured this was just part of the “right stuff”. We took it out to MAR and lo and behold, it did pretty damn good, no shifting, no heel and toe, brake with the left foot and lap time comparable with the normal setup in spite of the considerable extra weight of the big Dynaflow over the four speed, hey this has got promise, so we decided to take it to Wilmot for a test in real race conditions on a different flavor course.

We were pretty damn sure there was no way we were going to talk tech inspectors into OK’ing all that stuff hanging out spinning around in the cockpit so we set to work fixing that. The aluminum sheet metal driveshaft cover still fitted in place so I decided to make the transmission and bell housing cover out of cardboard and racer tape with the whole thing painted with aluminum paint, a couple of hours later, voila, a passable looking setup and we were off to the races. Since the car had been through their tech line several times before they really didn’t look inside the cockpit at the cardboard wonder and the car passed easily. I took the car out on the track and it was really cool, just left foot brake to the proper corner speed and stand on it and the engine would speed up and the car would take of like a big assed bird. Going down into the last corner was a joy, just stand on the brakes with the left foot with no worries about skip shifting down into low or anything. There was one hitch, however, standing on the gas out of that tight hairpin the transmission apparently didn’t offer enough reduction and the car would bog down for a second or so until the rpm could build up before it really took off, this was unacceptable. I recalled two things, the magazines implied that Jim Hall’s Chaparral automatic was two-speed and that the Buick had a low range that could be selected where the torque converter worked the same but the output ratio was internally changed. We quickly rigged up a little gear change lever so that I could gear down for the last corner and then shift up going up the front straight. This improved the situation somewhat but the ratio difference was too much, the tires wanted to burn off starting out and the engine reached max revs too soon and the shift was too slow making the situation not a hell of a lot better than the shiftless thrust lag so in spite of the brisk performance over the rest of the course the tight corner meant we had no chance of

spectacularly whippin' up on all of our competition so we motored off home to put the car back the way it was to go racing. Contemplating this whole adventure made me feel pretty good as I thoroughly believed that I had indeed found Jim Hall's secret and that I was clearly on the right track using the Dynaflow concept of a multi-element torque converter as the basis for this kind of arrangement. In spite of how cool this looked I decided that the time and money involved was well beyond my means so I abandoned the whole idea and never regretted it. The old Pink Lady III taught me a lot about sensibility.

Adventures at the Races

There was another legendary race track near Chicago that I think was run by the Chicago Region as well, called Meadowdale. The legend was that it had a "Monza Wall" which was a 180° roundhouse turn that was steeply banked like its namesake in Italy. The rumors were the usual ones one heard about highly banked race tracks, the banking is vertical, you have to go at least 90 or you will fall off, blah, blah, blah, so we decided to give it a try. We headed up there the weekend before Memorial Day, me in the Durant Special and John Martin in his big black Corvette along with a whole host of helpers and rubbernecks. Well it turned out that the "Monza Wall" was indeed a steep son-of-a-bitch but it was a good bit shorter than the original in Italy that joined the two straight-aways on an Indy size track about 2 and 1/2 miles long and did not command speeds nearing 200 mph, more like 80 or 90 and it was bumpy as hell. The reason it was bumpy was really noticeable when viewing it, apparently no one had road paving equipment that could negotiate the banking in the driving direction so they paved it cross-ways, perpendicular to the direction of travel and left transverse seams in the roadway that resulted in the bumps, crazy. The race was not memorable and about all I can remember about it was the need to clench your teeth tightly before entering the banking each lap to keep from rattling them loose. The Monza Wall was a selling point and an icon of Meadowdale but in actuality it was a pain in the ass and driving a race car around the place would be a good bit more fun without the Wall.

A track that I described earlier in these writings called Lynndale Farms in Pewaukee, Wisconsin was another track along with Wilmot that John and I visited by ourselves after we physically exhausted our crew. On one occasion we were there with John's Corvette with me turning the wrenches and a couple of noteworthy things happened. The first was a CM car that showed up out of the blue to race, neither of us had ever seen it before nor, apparently, had the legendary Jerry Hanson from the twin cities up in Minnesota that always seemed to have the fastest car at any given meet. This car was a clean but ordinary looking front engined sports car with a big V-8 engine typical of those that raced in CM except for one extraordinary thing, it had what appeared to be a totally stock 510 cubic inch Cadillac engine extracted from one of those yacht-like Eldorado's of recent years. That was pretty much like having one and a half engines of the displacement everyone else was running and it showed on the race track, this sucker absolutely flew! The exhaust note was relatively quiet, the engine never revved up very high and the guy looked for all the world like he was

on a pleasant Sunday drive, smooth as all hell but FAST. He blew Jerry Hansen a new ass-hole, collected his first overall trophy, rode into the sunset and was never seen again. Who was that mystery man? I wonder how many people remember this besides John Martin and me. The other thing that occurred that weekend happened on the road on the way home, we were cruising down old highway 66 south of Chicago in the middle of the night with me piloting John's big ole Buick tow car with the Corvette happily riding along on the trailer when all of a sudden there started a bit of a bump-bump-bump coming from the right front of the Buick. "What the fuck is that?" I exclaim to which John replies calmly, like only he can, "I think the tread is coming off the right front tire, but keep going 'cause we ain't got a spare." We look around and it is all dark for as far as the eye can see, not a gas station, a rest area, nothing for miles around, so screw it, I keep right on going without hardly slowing down. The bump-bump-bump turns into a thump-thump-thump a little louder and a whole lot more disturbing to smooth steering down the highway, "Keep going" says John and I start laughing because by now the wheel is thrashing back and forth in my hands and it is all I can do to keep the car in the lane. As the noise turns into THUMP-THUMP-THUMP and the steering wheel is being almost jerked out of my hands, there we are with me absolutely laffing my ass off while John calmly sits over in the passenger seat calmly encouraging me on with "Keep going!". Following a huge crescendo, a big WHAM, the phenomenon suddenly drops back to an almost tolerable thump-thump-thump again, "We lost part of the tread, keep going" replies John and my laughter is only slightly reduced. Shortly, this whole phenomenon is repeated as more of the tread flies off the disintegrating tire. "Keep going.", by now there are tears flowing from my eyes from the laughter caused by the visualization of this completely insane adventure. As the tread begins to totally unravel from the tire casing, the thumping becomes a banging as the long sheds of remaining tread thrash the metal of the wheel well and after a while there is another flurry of noise followed by complete silence and steering smoothness as all the remaining tread flies off the tire leaving us with a bare carcass rolling down the road. Imagining this totally bald ass round tire that looks like a string ball rolling down the road just enhances the laff-riot. About this same time the light at the end of the tunnel or horizon in this case appears in the form of a service station a few miles ahead. As we roll into the service station, the tire is on its last legs and begins to lose air and I can imagine the all night service attendant in this station wondering what in the hell is going on as John gets out and says "I think we need a different tire." and I get out of the other side with a totally tear streaked face from laughing. The guy fits up a nice used tire on the wheel and we are off to St. Louis where, on ensuing evenings this story is retold and relived by all. This was clearly one of the funniest things that ever happened on the usually dull, painfully tiring and boring trips towing a race car down the road on the way home in the middle of the night with the prospect of a day at work facing you in a few hours.

The Midwest Division of the SCCA, which is technically my home division even though St. Louis, as a city, is probably closer to the Central Division which is why we race there so often, stretches from Missouri across Kansas into

Oklahoma and Colorado with really not many official race tracks upon which to race. There are, however, several traditional races in the Midwest Division that are really big deals to the small towns that host and promote them, regular annual festivals. The Ponca City Grand Prix is one of these, held on the fourth of July next to Lake Ponca in this little town in hot, dry north-central Oklahoma. This was especially true in 1965, the first year I ever attended the Grand Prix with my brand new fast-as-hell Durant Special, when the fourth fell fortuitously on the Sunday of the Grand Prix to make everything just storybook perfect. I got out on the course for the first practice and started hot-dogging through the corners out among the trees through the park-like setting until I came to the obvious curving straightaway where I really stood on the gas. Further down the curve tightened up and got my attention since it had the lake right off the outside of the bend with no guard rail, I was back hard on the gas coming out of the bend when I suddenly realized that I was looking at staggered hay bales ahead of me. “Oh shit, the course must’ve turned.” as I braked hard and steered down through the bales and sort of sheepishly found my way back to the course to continue with my practice, I didn’t have to be reminded of the last hairpin turn on the course anymore. That afternoon I qualified on the pole for the big bore feature race which was the last event on Sunday afternoon. When the race finally was run late Sunday afternoon I took off from the pole position and waltzed off into the distance to an easy first overall, this was getting definitely cool! After the race I got the big trophy, a flowered horseshoe around my neck and a hug from the cute little Oklahoma trophy girl named Janie complete with flashing cameras…I felt like I had just won the Indy 500! Janie and my picture were even on the front page of the Ponca City newspaper the next day, how cool is that? I ended up winning a lot of races in my career but some of them just stand out for some reason or another and this was one of them, the whole weekend went absolutely perfect.

Another notable racing event happened that summer of 1965, we were at Burns Park in North Little Rock, Arkansas, an insane course that I have described in an earlier section of this book and as usual I was by far the quickest big-bore car there and barely had to try to qualify on the pole. Sometime on Sunday after practice and qualifying but before the racing commenced I was strolling through the paddock and ran into “Uncle Ed” Alsbury and greeted him with a “How’s it going?” to which he replied with a sheepish grin “Awful, this godammed course scares the shit out of me. I qualified last in my whole group.” Then an obvious light bulb went off in his head and he said “How would you like to drive my car in the race?” to which I replied “OK, I’d love to but do you suppose the officials will allow it? I’ve never even sat in it before.” He said like only Uncle Ed can say it, “Fuck ‘em, we just won’t tell ‘em and they will think that I just took a shot of brave pills when they see me tear-assing through the field.”, so we made a deal that I would be his surrogate and tell no-one. When his race time came I showed up intentionally late for the grid line-up and just proceeded in my last position out on the pace lap. The green flag flew and I stood on the gas and started passing guys and having a ball driving this little lightweight HM car, shit this is fun. I really couldn’t tell one of these guys from another so I had no

idea of my position in the race but I knew I was having a lot of fun and nobody ever passed me. When checkered flag flew I went straight back to the paddock where Edgar was, parked the car and got out whereupon Uncle Ed was all over me beating on me with joy, seems the race was broadcast over some rinky-dink radio station and he had listened to the announcer excitedly carry on about how fast that old man was, passing everything on the track and ending up first in class and second overall. I just smiled 'cause I had had a pile of fun and right then and there Uncle Ed said "You're my driver from now on if you want to be." And since I thought that was a pretty good idea we shook on it and I was now the driver of two different cars in two different classes at every race weekend, at least in the Midwest Division races. This actually turned out to be a huge benefit to me because it basically doubled the time I was on any given course in two radically different types of racing machinery giving me a mountain of experience in driving techniques and handling analysis.

As usual in September the Road America 500 rolled around again in 1965 and we journeyed up there like a big multi-car team. By this time Marvin Schoenfeld, whom we referred to as "The Jew", mostly because he looked like a Jewish person and sold carpeting for a living, no religious affiliation implied had purchased a race car called the Grand Sport. Now the original real Grand Sport was a light weight 63 Corvette Sting Ray look-a-like built by Zora Arkus Duntov of GM and driven by a host of famous drivers in a bunch of famous races. The car had a light weight tubular frame, a hand laid up fiberglass body with enormous fender flares over equally enormous Halibrand magnesium wheels and a wildly souped-up 377 cubic inch engine. Marvin's Grand Sport, however, was built by a guy in St. Louis out of a standard 63 Corvette Sting Ray coupe and was pretty much stock Corvette except for the modified body work, Halibrand mag wheels and the paint work. It did, in fact, look a lot like the real item. Marvin entered this car and I entered my CM Durant Special in the 500 with John Martin signed on as co-driver in each of the machines and we toured up to Elkhart Lake caravan style and parked next to one another in the paddock. After the last practice of the first day as the dark of evening approached, I was strolling through the paddock in greasy Levi's with no shirt on drinking a beer when Jeep Frey comes running up all excited uttering rapidly "Hey bum, come on over to the car, there is a whole bunch of guys all around your car wearing suits and checking over the whole chassis and everything." So I go over there and kind of ease up near these guys and start overhearing what they are saying…words to the effect, "We spent hundreds of thousands of dollars to develop a car, hire the best of professional race drivers and this son-of-a-bitch goes out in his back yard and builds a car that blows our doors off." It turned out that this was nearly the entire design and engineering staff employed by the Ford Motor Company to develop the first GT-40 and I had just run faster times than it in practice. I never did let on that I was that son-of-a-bitch and just laughed at them as they wandered away scratching their heads. Obviously this was a temporary teething set-back since in a few years the Ford GT was winning all the international big races like the Daytona and Le Mans 24 hour races. Its fun being a talented, shirtless race car engineer drinking a beer.

One might wonder, *"What the hell was Ford Motor Company doing at an SCCA race?"* as well as any number of famous world class racers and cars. The answer started in 1963 when the SCCA started up a professional division to go along with the traditional amateur format. The professional series, conducted at selected tracks including the Road America 500, was called the SCCA US Road Racing Championship or USRRC for short. In 1965 at the Road America 500 not only the Ford Motor Company showed up but the famous Jim Hall brought his cohort Hap Sharp and a pair of the outstandingly fast Chaparrals and I got to meet Hap and one of the Chaparrals up close and personal. I think it was during one of the practices Mother Nature pulled one of her tricks that she reserves for the Nurburgring in Germany, the Spa in Belgium and Road America in Wisconsin, it suddenly started raining cats and dogs out in the hinterlands of the race course. Not a sprinkle or a drizzle but a downpour, a regular frog strangler. In 1965 racing tires had developed to the extent that they presented a large patch to the road which on a lightweight racing car could rise up onto the top of a large puddle and plane up off the pavement, a phenomena call hydroplaning. In spite of living in a rainy area like Wisconsin all my driving life I had never experienced such a thing, must be those heavy old piece-a-shit cars with the little skinny tires that I drove around. Well let me tell you, hydroplaning is not even a little bit of fun, all four wheels come up off the pavement and you are totally out of control, gassing, braking and steering do nothing and the car follows whatever trajectory it feels like and there is not one fucking thing you can do about it. Sometime later I overheard Mario Andretti tell some fan that when hydroplaning you might as well throw the steering wheel over the side for all the good it did and he was dead right. I ran into this wall of water as I was exiting the Carousel turn and entering a gentle turn before Thunder Valley called the Kink, one of the very fastest parts of Road America way out in the back of the circuit. It took me about three milliseconds to realize that I was totally out of control at well over 100 mph and I started to look around to figure out where I might end up. To my horror I saw about a million bucks worth of racing sports cars lined up sideways along the left hand shoulder of the road like they were on display with Hap Sharp on my end of the queue and it looked like the current was taking me on the same ride that all those other guys went on, oh shit! My car was yawing slowly clockwise as I left the road and started sliding along the shoulder on a direct line to broadside the Chaparral. The good fortune is that the grass, dirt and gravel flying up under the fenders give the tires some bite and begin to retard your pace while sliding sideways. I was looking straight into the wide eyes of Hap Sharp as I slide ever closer until I finally came to a halt side to side about six inches from the Chaparral, eye-to-eye watching each other breathe a giant sigh of relief. Since both the Chaparral and my car are right hand drive Hap was sitting in the catbird seat because he was on the side the left side of my car would have slammed into and I had the entire width of my car to fold up before it got to my body but luck prevailed and neither of us got anything but scared. I never did officially meet Hap Sharp because nobody exited their car and all were able to just restart and drive off the shoulder onto the road and proceed carefully back to their pit. A hairy experience was had by all!

As this eventful and successful season drew to a close I found out that I had reached some kind of milestone, I was the Midwest Division Champion in my class, CM, now that was more like it. Until 1964 the SCCA had a sort of hap-hazard procedure for determining the overall national champion from those winners of the several divisions in each class across the US but in 1964 they came up with the idea of a run-off format where the first three or four in each class in each division would be invited to gather at one track and have it out for the national championship. The time was to be the four days of the Thanksgiving weekend and the place was either Riverside Raceway in California or Daytona International Speedway in Florida on alternating years with Riverside starting it in 1964 followed by Daytona in 1965. It was strictly an invitational event and a few modest expenses were covered as I recall. As MIDIV champion I was invited and decided to give it a go. John Martin had also won the MIDIV championship in AP with his big ole black Corvette but by this time he was busy with a bunch of guys in Milwaukee building a USAC stock car and intended to quit SCCA racing, move to Milwaukee and go full time pro racing so he wasn't at all interested in going to Daytona for the run-offs and a lot of the other guys had family obligations on Thanksgiving so it turned out to be me and my ex-roommate, Al and his new bride headed south for Florida. I decided that any increase in power would be advantageous so I talked Marvin the Jew into lending me the double hole fuel injection system off his Grand Sport Corvette to bolt onto my engine in place of the standard Corvette injection. The double-holer had two standard side-mounted Corvette FI inlets mounted on a plate on the top of the plenum and the side inlet covered with a blanking plate and had the possibility of increasing the air flow into the engine and hence adding horsepower. I also changed the final drive ratio by swapping gears in my Halibrand quick change rear end since the road course at Daytona used about two thirds of the high banked oval that the NASCAR stock cars ran on except that we ran backwards of the stock cars, clockwise instead of counter-clockwise.

Going to Daytona

Several days before Thanksgiving the three of us, Al and his new bride Karen and I, set off in my big old white Bonneville, by this time the thorked-top Oldsmobile had gone to tow car heaven, towing the Durant Special on its trailer. My ex-roommate, Al had a brother down in Atlanta and we planned to stop over there to visit him on the way so it was going to be a relatively leisurely trip compared to some of the all night thrashes during the regular season. Growing up in the depression and during WWII, I really hadn't traveled much anywhere except around the mid-west and most of that going around to race tracks so I had never been "down south" which sort of meant anywhere south of Missouri so this whole deal was a new experience for me. There also were very few Interstate highways at that time so a lot of the trip was through the back country of Kentucky, Tennessee and Georgia complete with refrigerators on the porches and abandoned cars decorating front yards along with country merchants with blankets and black felt pictures of Elvis and Jesus out in the yards. Boy this was shit-kicker heaven! We got to Atlanta and the temperature was 27° and I said,

“What the hell is this? I thought Atlanta was down south where it was warm and it is freezing cold, some body has been lyin’ to me my whole life.” The next day we journeyed south and as we entered Florida just past Valdosta in southern Georgia, the temperature jumped up into the 80’s and I exclaimed “This is more like it, down south must start at the Florida border.” We continued south and east to Daytona Beach and went immediately to the legendary speedway to check it out. The SCCA registration offices weren’t open yet so we just sort of wandered around in front of the monstrous race track when we heard the thundering exhaust note of a racing car issuing forth from inside the huge grandstand. All the gates were locked so we could not get inside to see what was going on but we were able to get along side one of the entrances through the grandstand and were able to see through it to the inside. About that time a huge explosion of sound comes through this tiny hole in the grandstand as a NASCAR stock car rips by at about 200 mph with the doppler sound fading rapidly to the right into the west high banking. About 20 seconds later we saw the car flash by the opening way in the hell across the giant speedway ripshittin’ down the back straightaway into the east high banking and a few seconds after that another sound explosion going by on the front straight, “Holy shit, is that son-of-a-bitch hauling ass or what?” This was all of our first experience with real speed up close and personal on this incredibly big race track and we were awestruck, it was Richard Petty out there in his electric blue car turning some test laps. Until you have actually seen a two and a half mile speedway you have no idea how big it is and when you see a racing car get all the way around in 45 seconds you really don’t have an appreciation of what 200 mph is all about. WOW, and I am going to get to drive on this same race track, how cool is that?

As it seems to me one of the perks of getting invited to the run-offs was two or three free nights in a motel made possible by SCCA reserving whole blocks of rooms in selected participating motels. Here in Daytona Beach all the motels were right on the beach along Highway A1A. After registering and getting all our paperwork we headed down to the beach next to get our motel rooms. Boy new shit coming at me in a steady stream one-after-the-other, down south, 80° on Thanksgiving week, giant speedways, Richard Petty and the ocean, I’d never seen an ocean before either. It actually looked a little like Lake Michigan but Lake Michigan doesn’t taste salty nor does it have a whole bunch of quaint motels lined up along side of it. Sometime later I even had to go up and down A1A to find the pass-throughs to the beach and attempt to find the remnants of the race track used before the speedway was constructed where the cars ran one way down the beach on the sand and the other way on the road, this was historical stuff. On Thanksgiving Day we went out to the track for our first day of practice, also our first time to see the inside of the premises and the garage area. Wandering down to the east high banking which we would be using presented another breath-taking experience, the fucking race track is vertical! Now I knew from the literature that the turns were banked at 30° and being a degreed engineer I could envision 30°, about two over and one up, right, well then why does this thing look vertical? It turns out that humans see vertical and horizontal stuff in a different scale, walking over 100 feet is no big deal but 100 feet up is

bun-quiveringly high up and our eyes and our brains see that way so an asphalt surface that is twenty or thirty feet high by fifty or sixty feet across looks vertical! *"Wonder what that is going to look like driving into it in a racing car, I guess I'll find out shortly."* As I mentioned previously we were going around the track backwards from the stock cars, I guess because that's the European way and other snobbish sports car stuff but anyway we set off from start/finish and head into the east high banking, around into the back straight-away, brake and sharp right hander about 2/3 the way down and then through several turns in the infield leading ultimately to an opening one-eighty turn back onto the speedway just before the start/finish. When it came time for my practice, I belted up and took off out onto the track. The first time into the east high banking I figured that if I didn't get going I might fall off to the inside so I got after it pretty good and watched what looked like that vertical wall approaching. The car actually entered pretty smoothly and then once your are in there it feels pretty good and you jump right into the throttle and roll right out, *"Shit, this is easy, next time no lift, just flat out into the banking."* The rest of the course was pretty normal road course, learn the turns, figure out the braking points and what gear to use and all the stuff you usually do on the first laps around a new circuit. Off the last turn across the start/finish standing on it, here comes the banking, *"Just hang on, roll in, go around and roll out, shit, piece of cake, hell this is fun!."* A few laps and you pass some guy in the high banking and look in the mirror to see where he is and *"Where the fuck did he go and where the hell did those trees come from?"* another banking phenomenon. When you are in the high banking it feels like a slight bend in a straightaway but when you analyze it you are making a much sharper turn than the g-force would tell you and looking in the mirror you see tangentially straight behind you and see the trees outside the track over the wall because the guy behind you is actually off to your right. The same kind of thing happens looking out the front, you actually have to look up relative to the car because the car is tipped up on its side, and if it had a top you might need a window in the top.

At one of the cocktail events after practice one evening one of the corner marshals comes up to me, introduces himself and says "You're Dick Durant, right?" to which I acknowledge that I am and he explains that he works out in the back straightaway some place and asks "Did you know that when you come off the high banking and go over that little bump that your front wheels come off the ground and never touch down again until you brake for that right hander way down the straight? You are essentially running down the entire back straight on the rear wheels alone." "No shit, maybe I ought to do something about that in case I want to put any steering action in the car going down the back straight" to which he replied, "Yeah, I just thought you might want to know this so you could." The next day we fabricated some fins to pop rivet on the sides of the front fenders that looked a lot like the canards on one of the Chaparral cars of Jim Hall. I never did find out if they worked or not because I never knew the front of the car was off the ground in the first place and the guy that told me about it never reported back but what the hell, they looked cool anyhow.

After the qualifying session I was looking pretty good as I was up third or fourth on the grid, the one lonely front engine car amongst a gaggle of rear engine machines. My old Wilmot nemesis and pal Ralph Salyer was in front of me in his new McLaren Elva Oldsmobile along with another guy called Joe Starkey out of Texas in a bright red McLaren MK I. As we lined up for the start I didn't know quite what to expect since during the mixed class practice runs I never really had any head-to-head runs against any of my competitors in my class so I figured I would just set off in the race and see how it all shook out, after all the race was a 45 minute affair so there was no particular hurry to get to the front. The green flag flew and we were off and running. I noticed right away that I was fairly near the front so I figured all I had to do was keep those guys in sight, wait for anything that going to happen and bide my time, I could make my move closer to the end. As I remember I had worked my way up to second spot right behind Salyer's dark blue McLaren and heading down the back straight into the fairly tight right hander into the infield under hard braking I spotted a little puff of blue smoke coming out of the contact patch under the right rear tire. *"I better get ready 'cause he's locking up and could spin when he turns in for this corner."* and sure enough, seconds later that is exactly what happened and I cruised by into the catbird seat. The race was about two thirds over and I said to myself, *"Self, you got this hammered; all you got to do is keep your nose clean and cruise to victory."* which is what I proceeded to do until the second to the last lap as I was cruising down the back straightaway and suddenly the engine quit just as I was entering the turn into the infield. *"Oh shit, shit, shit, double-shit, its probably the fuckin' fuel injection cable!!!"* this had happened before, fortunately not too often but NOW? I pulled into the infield and jumped out and looked and sure enough the sumbitch was in two pieces. I pulled my spare cable out of the breast pocket of my driving suit and deftly replaced the offending item with a fresh one and proceeded to the finish but alas, all was lost…I was NOT the CM National Champion. So close, so fuckin' close but not to be!! Often in our discussions over beers after MSCC meetings we had pronounced philosophically that there was almost no human activity that produced the lowest lows and the highest highs like racing did and this result of my first run-off encounter was pretty close to the lowest low of my life, certainly my racing career. What a bummer!!! Unfortunately this pretty much set the stage for all the subsequent run-off's that I attended during my entire SCCA racing career, some of which I will describe as this book moves on, but none ever beat this one for "oh double shit".

Back at the Ranch

When we last visited the Ranch it was the abode of Al and I, it rocked with jazz music and hosted an array of outrageous parties as well as being the place where the Red Warrior and the new hugely successful Durant Special were hatched along with the initial layouts and sketches of Mid-America Raceway at Wentzville, Missouri. Sometime in the 1964,5 time frame a couple of significant items happened that changed the complexion of the Ranch. The first was that my roommate Al succumbed to romance and got married and moved out leaving me as the sole tenant of the ex-chicken coop. At this stage of the game, this was no

significant financial burden to me and it was actually kind of refreshing to have the whole place to myself plus the fact that I was more or less entrenched there with my big old lathe and all my stuff plus some racing cars and motorcycles. The other event was the marriage of my teammate John Martin and his subsequent relocation to the front house at the Ranch which had been recently vacated by the elderly mother and father of my landlord in Oxnard, California. Now we had a full-fledged racing complex with John and Nancy in the front house with use of the two-car garage across the driveway from the back of the house coupled with me in the back house with the main fabrication facility attached, boy, how fuckin' cool was that?

One day at the Ranch a strange car pulled down into the back driveway next to my house and garage and three guys got out, actually one was lifted out and put in a wheelchair, and introduced themselves as the Three-E Racing Team. This was my initial introduction "Little" John Egley, Frank "Willie" Eggers and Frank's brother Bobby, the guy in the wheelchair. They said that they were a rather successful go-kart team based in Hermann, Missouri and had decided that they wanted to get into sports car racing and could I provide them with some advice on just how to go about this. As it turned out they ended up staying for hours, meeting Big John while we drank a few beers and really got to know one another. Little John was a bachelor, had a degree in English or journalism, worked at McDonnell and was the team driver; Willie was married, had four kids, lived in Florissant, was an engineer at McDonnell and served as the team engineer and wrench while Bobby was an ex-USAF honor guard that was crippled by a spinal injury, lived in Hermann with his parents and was the car owner and team financier. All were super nice guys and were setting out building up an Austin Healy Sprite for racing in HP and we welcomed them as friends as they continued to be all through John and Bobby's lifetime and still for Willie and I. Together they made a good team and moved right on from being go-kart champions to MIDIV champions in HP, it wasn't instant but they caught on fast, Willie prepared a good, fast car and John drove the wheels off it and Bobby just enjoyed the whole thing from his wheelchair. One time at Road America in Elkhart Lake, Wisconsin they had some sort of engine difficulty that resulted in a legendary story. At that time the only thing that was paved at Road America was the circuit itself and the paddock was luxurious green grass in which you had to lay and perform any repairs or adjustments to your race car. Apparently the problem was with the lower end of the engine, a rod or main bearing failure and Willie was attempting a field fix to get them going for the race the next day. In those days, and maybe still today, they sold a product in auto parts stores called Plastigage which were little multi-colored noodles of plastic which when inserted between a bearing shell and the crankshaft would squash down when the parts were assembled and torqued down. When disassembled, the width of the mashed plastic was compared with marks on the side of the container envelope which were calibrated into the bearing clearance. The different colors were for different ranges of clearance, green for .001 to .003 inch, red for .003 to .006 inch etc. Well, as luck would have it in the wilds of the kettle moraine farm country of Wisconsin, Willie was able to find some various sizes of bearing

replacements for the Sprite engine but no Plastigage. How would he know which bearing was the right one to finally install? Being a clever guy he came up with a scheme where he would install a blade of grass between the bearing shell and the crank journal, bolt it up, take it back apart and measure the squashed blade of grass. With a little experimentation he was not only able to determine the correct default size of the test grass blade to get repeatable results, he was apparently able to judge the bearing clearance well enough that the reassembled engine took John to victory the next day and "GRASSTIGAGE" was born. It never became a popular replacement for the genuine commercial product but it certainly did make for another legendary story.

Since when I first moved to the Ranch and started working out in the garage and was plagued by the birds shitting on my cars and put the word out for a cat to roam the premises to dissuade the birds, I sort of became a multi-cat owner. I wouldn't feed these creatures or let them into my house because there was enough room and rodents outside to keep them fat and happy. I guess because I would give them each a name and some attention, they thought this was home and stayed. I never had to go out of my way to get more because some of the girls that hung around would bring every stray or pound-bound cat out to my place so I generally had three or four around. One day, John jumped into his Corvette and in one quick sequence of events started it up, jammed it in gear and took off accompanied by a piercing scream emitting from one of my cats that was lying asleep on top of one of his wheels and got summarily run over by John. I didn't see this event but later John sheepishly told me that he had done this and that the cat was mortally wounded, and took off into the bushes to die. "Oh well…shit happens, there are plenty more where that one came from" and we forgot about it. Well, apparently the story of cats having nine lives is factual because several weeks later that cat came out of the bushes and started hanging around again like nothing ever happened except that he had a terrible gimp. He had apparently broken his hip when John had run over him but laid in the bushes licking it until it all healed up and he was as good as new…a little misshapen and with a giant limp in the rear end that netted him a new name. He was the first cat that I had gotten and I had never given him a real name, he just went by "Cat" but in his new configuration that just would not work so his new name became "Chester" after Matt Dillon's side-kick on the hit TV series "Gunsmoke" who had a similar walking style albeit his was acting and the cat's was real. I had one other cat who came into my possession one Christmas day while I was working out in the garage in the morning, apparently abandoned by some family who had gotten a new puppy for Christmas or something like that. Since he came to me on Christmas morning what more suitable name for him than "Jesus" so that was his name until one of the more knowledgeable ladies that hung out at the Ranch on occasion determined somehow that "Jesus" was a female cat, not a male. "No problem", say I immediately, and changed her name on the spot to "Lady Jesus" which it stayed until a few years later she mysteriously disappeared, never to be seen again.

A while later, someone dropped off a couple of really little kittens, one of which had a disproportionately large rear end which netted he/she the name of

“Satchel Ass” and the other was completely black and was named with the n-word, more or less proper in those days before political correctness and sensitivity training. John and Nancy were not into the cat thing and obtained a big off-white mongrel of a mixed breed dog that went by the name of “Heinz” because his heritage was mostly “57 Varieties”. He was a big friendly lovable sort of dog that just sort of hung around and was friendly to all including the cats, he had no enemies. He also had no tendencies to run off so he was just left outside all day while John and Nancy were at their respective places of employment. One time I came home, for some reason, in the middle of the day and as I drove into the driveway I spotted Heinz holding forth majestically on the grassy knoll in the front yard and I noticed something dangling from his mouth. As I drove down the driveway toward the Ranch in the rear he followed me and I began to check out what was swinging back and forth from his jaw and to my disgust I recognized the nether end of Satchel Ass the kitten. I figured that the dumb dog was playing with the cat and accidentally killed it since he was so much bigger. “You big dumb son-of-a-bitch, how come you killed that cat?” At about that time he opened his mouth and dumped Satchel Ass out on the ground and she landed on her feet and began shaking the dog slime off her head and upper body, she wasn’t dead after all, just taking a ride around the yard with her head in the dog’s mouth and the rest of her dangling in the air. These two must have dreamed this up all on their own because they were observed for a considerable time after that day marching around the yard with Satchel Ass riding with her head in the dog’s mouth, the two pals. Cats can learn to like almost anything they can construe as friendship with another creature. Anyone who has observed cats at all will be aware of how they will sidle up to a person to rub against them with their tail pointing straight up. All of my cats were no exception to this, the oddity with them was that when I would grab their tail and lift them off the ground and they would not scream in agony. Soon this became a ritual where I would not only pick them up by the tail, they would curl up their front feet and start purring as I carried them around that way, they loved it. People, girls in particular would start railing at me for being cruel but after I pointed out that these creatures were actually purring with delight they would just shake their heads. Due to the apparent peaceful nature of all the animals no one ever gave a thought to the fact that cats have rather fierce and greatly feared relatives in the jungles and savannahs of Africa. This was vividly shown one time when some friends of Big John came out to the Ranch to visit and brought their dog, an extremely active big brown Weimaraner that John called a “Weenie Rammer”. Well as soon as the Weenie Rammer hit the ground he spotted Chester the BIG cat lounging near John and Nancy’s back porch and went into attack mode complete with fierce barking and growling charging at Chester, who with all the calmness in the world stood his ground two steps up from the gravel driveway in the face of what looked like certain disaster at the hands of a seemingly wild dog that was WAY bigger than him. He just waited until the dog was just about a millisecond from taking a big chunk out of him when out flashed one paw with the claws bared and applied three deep slashes in the Weenie Rammer’s nose which immediately started spurting blood all over the place, stopping the attack and rendering the dog

harmless, after which Chester limped slowly and triumphantly off to a different and safer place. The animal kingdom at the Ranch was indeed a wondrous place.

At the end of the 1965 season with all the successes I had with my new car and with John and I working together in our new racing complex, the Egley and Eggers team had invited everyone out to Hermann on a Saturday night to observe and participate in some night go-cart racing that someone had scheduled. The event would be followed by a weenie roast and beer drink at the Eggers farm. Now this wasn't a real crop growing farm that the Eggers had, it was sort of a recreational facility that supplemented their sumptuous home high on a hill overlooking scenic Hermann. Apparently Mr. Eggers, Willie and Bobby's father, had been quite successful in whatever he did before retirement. At any rate, on the Saturday of this event Nancy Martin took me off aside and asked me if I would ask Judy Frazier to ride with me out to Hermann since, I guess, she had told Nancy that she didn't want to go by herself. At any rate she accepted my offer and little did I know that this date would be the start of some significant changes in my life. Although I knew Judy I'm not sure that we were ever formally introduced and she had never been a participant in any of the debauchery that went on at the Ranch and further she made a point of pretty much avoiding me because I had something of a shoddy reputation in my relationship with girls. She was interested in cars, however and participated with her Austin Healy 3000 in the Gymkhanas and Autocrosses put on by the MSCC and other local sports car clubs. She also worked corners at all the local races at MAR and so was quite familiar with sports car racing and certainly knew of me as one of the performers. She also was the official baby sitter for one of my crew guys and all around helper and car painter, Tom Masterson and he, in turn, would perform all the maintenance on her car. As it turns out, the Austin Healy had an absurdly low exhaust system along the right side of the car that is subject to various damage from time to time that required welding to fix. Tom neither had welding equipment nor the ability to weld so he would bring her car out to my place and saddle me with repairing the exhaust system, so I sort of knew Judy or at least I knew her car. Well I asked her to go with me and she accepted my offer and when we got ready to take off for Hermann, she sheepishly asked me if it was OK if she brought along the birthday cake she had made for Bob Klempel. I said sure not knowing, first of all that part of the reason for the get-together was for Bob K's birthday and second that she was dating Bob occasionally, but it wouldn't have made much difference to me anyhow. After sitting in the stands watching the races and drinking some beer, Willie Eggers comes up to me and asks me if I would like to try out one of the carts right after the event was over but before the lights were turned off. Of course I jumped at this opportunity and they found me a leather jacket to wear and a helmet that would fit and began giving me some brief instructions on the operation of a go-kart. The last thing Willie told me before I set off in the kart was that the big sweeper way out in back on the edge of the darkness was normally taken flat out and I was off. I ran some warm-up laps to get used to the kart and then started to get after it. The kart felt really good and I kept standing on it more and more but I began to notice that I was nowhere near

flat out in the turn Willie had said and the kart was squirming all over but I thought *"If these country bumpkins can take that corner flat out, so can I."* and I went as hard as I could go down into that bend wide open with the kart all over the road and finally had to feather off a little to avoid complete disaster. I tried a couple of more times and finally gave up and came in to find those guys absolutely laffing their asses off. I caught on quickly and said "You fuckers knew no one could take that turn flat out and told me you could to just see me kill myself." and all they did was keep laffing and telling me how they could hear me pedaling the throttle to keep that little fucker on the road and how I came closer than anyone they'd seen to actually accomplishing the feat. Well after that we all adjourned to the farm for the bonfire with the beer and the food. By this time it was well after dark and was getting chilly as hell and I could see that little ole skinny Judy was freezing her ass off so I put her in front of me facing the fire and stood behind her with my arms around her telling her I could keep her 50% warm and the fire would have to do the rest. Along with that she was drinking beer with me and I started to think that she was a pretty cool date indeed. As the evening wore on into the wee hours I was well beyond pain as were most of all the rest of the participants and the whole soiree ended up inside the warm farmhouse sleeping all over any flat space available. Major league hangovers were the order of the morning so we didn't set off until the afternoon but by then I decided that if she would have me I was going to ask Judy out again and that pretty much started a lasting romance.

Sometime later that same fall my buddy Emmett Pyatt asked me if I would help him design and build an HM special for him to drive to replace the old front engine Jabro that had come from the original days in Jim Broadwell's basement. He wanted a rear engine Saab powered car similar to the one I drove for Ed Alsbury and I told him that I had some ideas to improve on that design but he rejected some of my ideas because of cost but I agreed to furnish my shop since I had all the stuff like a torch, a drill press and, of course The Lathe. He agreed to that even though it meant him coming to my house every night to participate in this project. The car was a pretty straightforward design and what it mostly amounted to for me was designing the basic layout, the frame and the front suspension and mounting the body and then we would trailer the car home where he would finish up all the mechanical stuff and the endless details to make it into a race car. I wanted to build a car with full independent suspension on both ends but there is where his financial situation came into play, he wanted to use a VW transaxle turned around backwards and upside down complete with the swing axle rear suspension with the only modification from VW being the trailing arms and springs changed from the VW torsion bars to coil over shocks. I readily accepted these changes because it led to a whole bunch less work for me in the rear suspension department. The front however was going to be fully independent using Triumph Spitfire spindles, uprights and rack and pinion steering as well as the disc brakes. This was basically the same as I had used in the Durant Special only smaller. I designed the suspension arms the same as mine with one exception, I decided to try and incorporate some anti-dive in front to keep the nose from dipping so much under hard braking. This involved

skewing the inboard mounts so that instead of their axes being parallel when viewed from the side they were further apart in the front which tended to cause the rearward force on the chassis from braking to act in the upwards direction to counteract the weight transfer force through the chassis from the back to the front and thus reduce the nosedive of the chassis under braking. The rest of the design was pretty straightforward and we set to work welding up this little creation in my garage. Since Emmett was both married and older than me he wasn't as motivated as John Martin and I and usually wanted to quit by midnight and go home so, for me, it was a lot more laid back building season then the previous winter when we worked until 2:30 or 3:00 in the morning and then just fell into bed dog tired. When Emmett quit for the evening I would too and head down to one of the local saloons to relax and have a few beers before going home to retire, nice. It wasn't too long before we finished the basic chassis and loaded it on Emmett's trailer and he took it home to finish up leaving me the rest of the winter to work on my own car. a few months later when he got it all done he brought it back out to my house to give it some running time on the country roads around my house. I was particularly interested in how the new anti-dive front suspension worked and wow, it really worked, when you got on the brakes really hard the front went up instead of down. The real bummer came when we took it to MAR to give it a track test and Emmett took a few laps and came in complaining that the front end jumped all over under braking. I drove it and he was right, something goofy was going on with the anti-dive system but we didn't know what the hell it was. We took the thing back to my shop where I took off the front spring and shock so I could easily move the front suspension up and down and observe the action. It turned out that the large amount of castor that I had designed into the front suspension when combined with the also large amount of anti-dive created a lot of steering when the front end went up and down through its travel which made little difference when baking straight on a level surface but on a bumpy race track caused the squirrelyness that we were experiencing. This was my first experience with bump steer, something that became more and more important in the setup of race cars in my future. In this case, however the easiest solution was to add another suspension pickup to take out the anti-dive and return it to normal which worked fine. Another lesson learned by experience, fortunately a mistake easily corrected. Much later I found out that I could have fixed this condition and retained the anti-dive by changing the vertical positioning of the outer steering joint to introduce bump-steer in the opposite direction to cancel out that caused by the castor and the anti-dive. This is how Corvette corrected a similar bump-steer problem in the Sting Ray. I think this is the lesson of the old German saying; "Ve get so soon old und so late schmart."

Sometime during this winter John Martin got really serious with some guys from Milwaukee that he had met who wanted him to drive the new USAC stock car they were building for the upcoming summer. He decided to turn full time pro racer, sell his Corvette, quit his job at the Pontiac dealer, move to southern Wisconsin and seek his fortune being a full-time professional stock car driver so he and Nancy moved out of the front house which was taken over by another old buddy of mine named Al Gottlieb. Now Al was a very strange guy, quite short and

thin but ultra-cool, came from New York and talked like a jazz musician. He was kind of an artsy-fartsy guy that worked in the same department at McDonnell as Curt Poulton and Tom Masterson. He had gotten married and his new wife had gotten him interested in pedigreed standard poodles to the extent that they had a whole kennel of these beasts. The upper house with basement and garage was perfect for them so they took over from John and Nancy and our expansive race car complex turned into half race car and half kennel. Since Al was into cars there were no problems with our noise and late night car construction and the only problem I had was the fact that they got rid of the mountains of dog-shit that these giant poodles created by burning it in a fifty-five gallon drum in the backyard and sometimes when the weather was warm and the breeze from the wrong direction the smell of smoldering dog-shit would come drifting into my bedroom…yaaak!

During the rest of the winter Judy and I dated pretty regularly and some time in the spring I asked her if she thought she could be happy married to me, she replied she didn't know because she had never been married but she would try, and so we were engaged. I sent here off on two assignments, first to look at wedding bands (they were cheaper than diamonds) and second to find a house for us to live in, preferably a new one, hell why not get a fresh start. We had a little talk about what kind of house I would like and I replied instantly "one with a BIG garage" to which she replied, "and what else would you like?" and I said "any thing that you would like." She went to a jeweler she knew and found a wedding set which she liked and then had to come back to tell me that she wanted a diamond set so we bought it and she started wearing the engagement ring proudly. This also spelled the end of her helping me in the garage which she did occasionally just to spend time with me. One day I had her washing parts in solvent that was getting all black and dirty and suddenly she saw her shiny new diamond engagement ring dripping this black shit and burst into tears at the sight, I consoled her and cleaned up her hands and the ring with fresh clean stuff and got her settled down but she informed me in no uncertain terms that her hands had definitely seen their last bath in dirty parts washing solvent. One day she came out to my shop all excited telling me she had found our new home and wanted me to go with her and look at it so we drove into Hazelwood to the display houses on the street one over from Candlelight Lane off of Highway 140 to check it out. Well the house she had selected was a typical modern three bedroom two bath subdivision home with a living room, kitchen and a large family/dining/kitchen area connected up to a 20 foot by 30 foot double garage. PERFECT for a race car shop along with a full basement with the stairs straight off the garage. We selected the lot we wanted and ordered the house to be built. We did one smart thing in ordering rough plumbing for a half-bath down in the basement so the dirty garage dudes didn't have to traipse through the house to drain off excess beer. The unseasonably hot weather caused us to avoid doing a dumb thing, when asked if we wanted air conditioning we looked at each other, shrugged our shoulders and replied "No we don't think so since the heat didn't particularly bother either of us." As we exited the air conditioned display home and walked to our car which sat in the ultra-hot street soaking up solar radiation

and coming close to a million degrees inside we looked at one another and simultaneously changed our mind about air conditioning our new home, turned around and went back inside and reversed the last order. After our engagement in the spring we continued our current living conditions with me at the Ranch and she sharing an apartment with her older sister until our wedding day on July the 15th of 1966 after which we lived together at the Ranch or what Judy referred to facetiously as her "Honeymoon Cottage" until sometime in August when our new house approached completion. At first I didn't think too much was wrong with our living arrangement until I started noticing that Judy was going to her sister's apartment after work nearly every day to shower and primp in the bathroom there. Slowly it began to sink into my still bachelor brain that a crummy bathroom with vermiculite insulation falling through the ceiling and kind of smelly water from a cistern was not a suitable facility for a new bride to say nothing about our long standing propensity of peeing out in the yard to save water. As newlyweds we were able to stick it out but we began to urge the real estate people that we were more than ready to move into our new home, the problem being that there was some sort of labor dispute involving the sheet metal workers that installed the heating and cooling ducting in the house. We finally got them to agree to let us move in without the ducting in place and then have it installed later when the labor dispute ended. As we started moving our stuff from our respective places of residence into our new home another slight glitch in the readiness of the house cropped up. The electrical service was not hooked up yet and there was some unknown backlog so they didn't know when we might get electricity. I said "Screw it, I can get that fixed pretty easy so let's move in." and we did. I rigged up a couple of copper bus bars that I stuck between the clips where the meter went every afternoon when I came home from work and powered up the house for the evening which gave us lights and refrigeration for the night at least. In the morning before we both headed off to work I would remove the bus bars and hide them in my tool box and we would put the perishables into a cooler and head out, disguising the fact that we were living off of free power in the evening. Fortunately this situation didn't last too long and one day when I appeared home there was a meter in place and we could begin to live a more or less normal life with power and refrigeration all day and night.

The New Digs

Since Judy basically didn't have any furniture and the shit I had wasn't fit to bring into our new home we basically needed to procure an entire household of furniture. My racing buddy Marvin "The Jew", being in the carpet business had a close friend and business associate that ran a furniture store, and he introduced us to him. He had an ample supply of pretty nice furniture at reasonable prices so we bought the whole works from him in one swell foop, a couch, lamps, end tables and an easy chair for the living room, a kitchen table and chairs to supplement the built-in counter/bar in the kitchen/family room and a bed and dressers for the bedroom. When all that stuff was delivered we were pretty much in tall clover with a brand new house and all brand new furniture. The only thing still missing was the sheet metal ducting down in the basement

from the furnace to the holes in the floor where the registers went. Even though Judy kind of liked the holes in the floor through which she could sweep the debris through straight into the basement when cleaning the house, the fall was upon us and soon the heat was going to be a necessary commodity. As good fortune would have it, before any suffering had to be gone through the sheet metal workers settled their dispute and our house was completed and we had heat along with the air conditioning for the next summer. I left most of my race car stuff out at the Ranch since we were still into the current season of racing and I divided up my time between race car maintenance at the Ranch and fixing up my new shop at the house. The first thing I did was to go out and buy a toilet, a sink and the plumbing necessary to install the basement lavatory facilities and put all that stuff into an adequate but small unfinished bathroom down in the basement. The next thing was to install an insulation board ceiling in the garage by building up a 2x4 structure tied to the garage roof to which the insulation board could be fastened. A friend of mine known as Long Larry because he was around six feet six tall was helping me do this job and our difference in size led to some pretty humorous moments in the construction, particularly the erection of the 4x8 foot sections of insulation board over our head on the ceiling. We used a step ladder and an old dresser from the Ranch as our elevated platforms, Larry on the step ladder was the nailer and I on the dresser was the holder. The drill was that we would man-handle the large awkward sheet of material up to the ceiling and I, with a racing helmet on to pad my head, would stand in the center of the sheet with my knees slightly bent until we got the sheet positioned at which time Larry would say “Clamp” and I would stand up straight and lock the sheet to the ceiling with my head while holding the rest of it loosely up with my arms while Larry installed the first nails to hold it up. I would then unlock my knees, move down the dresser a ways and “Clamp” again while more nails were installed. A few more iterations of this goofy technique would have the sheet tacked up enough that I could then remove the crash helmet and we would both engage in the installation of the rest of the nails to permanently hold the sheet in place. A couple more nights of this exercise and we had a nifty ceiling installed that not only made the place look professional, it would help in climate control in the icy winters of St. Louis. Since Big John was long gone as was the supply of used automatic transmission fluid, a new heating system needed to be found, leading me to tee into the natural gas supply line for the clothes dryer down in the basement and plumbing it to the garage where I hooked it up to a space heater that I had found. The Ranch did not have 220 volt service but the new house did so I decided to further upgrade my facility by running the 220 from the basement panel up to the garage so I could buy an arc welder and plug it in to the new circuit, and maybe even run The Lathe off of 220 volts.

Before moving the race car and the rest of my tools and race stuff to the new shop I needed to figure out how in the hell I was going to get my iron giant, The Lathe, out of the Ranch shop with the dirt floor, down the road six or seven miles and into my cool new shop on Candlelight Lane. Somewhere along the way I got to talking with Marvin “The Jew’s” trusty mechanic George “The Pollack” who worked as a mechanic in a place where he had access to a wrecker used to

tow disabled and wrecked cars. In looking through the specifications of the lifting system on the back of the wrecker we found out that it had sufficient capability to lift the weight of The Lathe and was of a size small enough that we could back it into the garage at the Ranch and extract The Lathe. With a proper piece of equipment available I set to work getting the rest of the stuff necessary along with a plan to accomplish the feat. I was able to borrow a couple of lifting slings and two of the heavy duty machinery movers from the McDonnell maintenance guys to hold up the heavy end and built a dolly for the other end consisting of a three foot 2x4 with a pair of heavy duty castors bolted to it. I called it the world's most dangerous skate board, just contemplating standing on such a thing and trying to let it roll makes the buns quiver. The plan was to remove the motor, the gearbox and the structure to hold these two components to the lathe to lighten it up, and then move both the tailstock assembly and the carriage as far to the tailstock end of the lathe as possible to balance it up so that it would hang reasonably level on the back of the wrecker. We would make up for the rest by slinging the lathe off-center enough to make it level. When we got to my garage at Candlelight Lane we would set it down on the garage floor and rebalance it by running the carriage and tailstock to the headstock end to create a heavy end for the machinery dollies and a light end for the skateboard dolly. Then we could manually roll it into place against the back wall of the garage and set it on the leveling pads. On the Saturday that George got the wrecker we adjourned to the Ranch garage where I had already prepared for the move by removing the parts described above and clearing the way for the wrecker to back into the garage. We slung the lathe to the wrecker cross-wise and picked it up off the support pads and backed it clear of the garage out into the driveway where we set about balancing it as good as possible without it being too far off center. The real problem was that the lathe had an overall length of about ten feet which, of course, turned into ten feet <u>wide</u> with it cross-wise and we planned to take it over roads with eight foot wide lanes without a "Wide Load" permit. The way it worked out was that we positioned the headstock (heavy) end on the left (driver's) side about even with the bodywork of the wrecker and let the other end stick out to the right or curbside. This way we could drive down Shackleford Road with George over the centerline to keep the tailstock from knocking out mailboxes and me in the Pontiac running interference in the rear and when a car came in the opposite direction he would pull off and stop between mailboxes, closer to Candlelight on the neighborhood streets we did sort of the same thing to avoid mailboxes, street light poles and traffic signs. This all turned out to be pretty effortless although it took fairly long because of all the stops. When we got it to the new shop with a brand new smooth concrete floor to roll it on it really turned into a piece of cake and in no time it was setting in its new home all leveled up and ready to have the accessories bolted to it.

Several more trips out to the Ranch, each time bring a load of stuff back succeeded in emptying out the garage of all the rest of the equipment, tools and raw materials and the new shop began to transform into a real workshop. The race car and trailer were the last to arrive and it was about high time to go to work.

On We Go with the Durant Special

With all the stuff that went on in 1966 starting with spending a bunch of winter time helping Emmett build his car, dating and finally marrying Judy complete with buying a new house, furnishing it, building and outfitting a shop, and moving all my stuff from the Ranch to my new house, the Durant Special turned out to be sort of a neglected child receiving only necessary maintenance and no upgrading other than a long and more aerodynamic nose which turned out to be uglier than it was functional, so there was no championship like in 1965. A season driving the Alsbury Jabro was also not overly successful because the car started to fall apart with much more vigorous driving than it was used to. We traveled off to Elkhart Lake in the fall to take part in the RA 500 with John co-driving with me as well as co-driving with Marvin in his imitation Grand Sport Corvette. My car was unsuccessful in completing the distance and was listed as a DNF but Marvin and John did pretty well and had a good finish. This completed a pretty disappointing race season and inspired me to plan on spending more time in the coming winter upgrading the Durant Special. Ed Alsbury went home to Kansas City with pretty much the same plan; he was going to make the Alsbury-Jabro a lot stronger car with more horsepower from the SAAB so that we could do better in the MIDIV Championship.

The first project I took on in my new shop was an upgrade to the front suspension of the Durant Special, not that the one I had was so bad just that I some ideas on how to make it better along with installing bigger and more effective front brakes. The original design had upper and lower A-frames that were fastened on the inner ends with rubber sleeves made from standard automotive shock absorber rubber bushings, sort of like the Formula Fords of the day. This, not only was kind of squishy when loaded, but it also tended to squeeze out the rubber bushings which changed the suspension alignment. The design I had in mind used rod ends on the inner ends and monoballs on the outer ends that functioned as ball joints allowing for both suspension motion as well as steering. The shape of the “A” was also changed utilizing one leg perpendicular to the chassis centerline and the other going forward like a leading link to take up the braking torque load. These were made in separate pieces with the leading link bolted to the other one to form the “A”. This arrangement had several advantages over the other one; it was easier to fabricate and assemble, it allowed for both castor and camber adjustments, it was easier to fix, reassemble and align in the event of crash damage and last and but of course most importantly, it looked a lot cooler to the discerning observer. The downside was that a standard upright could not be used so it was necessary for me to design and build a new upright assembly from scratch. I made the main spine of the new upright from a length of 4130 heavy wall tubing and used 4130 plate stock and lathe stock to fashion the attaching parts. I learned how to weld these parts together using 4130 rod with my arc welder and it turned out nicely and never busted or bent in service so I must have done it right. My memory is a little thin on just how I adapted the ’65 Mustang hub and brakes to my new upright but I think that what I did was to cut off all the appendages on a standard Mustang upright and turn the back plate of the spindle flat and bolt it to a mating flat plate

that was welded to the new upright. This was a technique that I employed to make axles and spindles for the abundance of race car trailers that I built in this same general time period. With the Mustang spindle bolted to the new upright the rest of the job was simple, just bolt together all the new parts from Ford; hubs, rotors, calipers and new front wheels with a Ford bolt pattern. This whole upgrade turned out well as the car had a much more solid feel to it and the brakes demonstrated better and easier stopping power.

The other major project was to create a double hole Corvette fuel injection like I had used at Daytona at the run-off in the fall of 1965, the one I had borrowed from Marvin's Grand Sport. The basic mechanical's of this was pretty easy; I scrounged up a guy at the "Kite Store" to do a G-job for me with a milling machine on a half- inch thick aluminum plate creating the grooves that held the peripheral rubber sealing ring and also to put in the two large holes for the two Corvette inlets, one of which I bought from Chevrolet and the other the one that used to live on the side. The rest I could handle in my shop, drilling the holes to hold it on like the former decorative finned top cover and making a blanking plate for the hole in the side of the housing where the single inlet lived. The real engineering part of the job came when I started thinking about the fuel/air mixture and how to make it right with only essentially half the air flowing through what used to flow all the air. Understanding exactly how the injector controls the fuel flow from the piezometer ring signal was absolutely necessary to figure out what needed to be done.

The Rochester Fuel Injection on the 1963 Chevrolet Corvette is a constant flow system that continuously injects fuel into each intake port behind the intake valve. Air is drawn into a plenum above the intake ports through a side mounted throttle body that has an annular venturi built into it called a piezometer ring that creates a vacuum signal similar to the venturi in a carburetor. Instead of drawing in fuel through a jet that is proportional to the airflow it directed the vacuum to a relatively large diameter chamber sealed with a diaphragm. A stem connected to the diaphragm is connected to one end of a lever. The other end of the lever is restrained by a little compression link that kind of resembles a double ended nail. Fuel pressure acts against the flat nail head though a precise size hole to create a force to react and balance against the diaphragm force caused by the vacuum creating a control system that increases the fuel pressure in proportion to the amount of air going through the piezometer ring. The fuel is pumped from a float bowl assembly on the fuel injection body to a fuel plenum behind the nail control. Here the flow is split between a manifold with eight tiny equal length tubes that lead to each intake port of the engine and a bypass back to the float bowl controlled by the nail. The pump is a rotary positive displacement pump driven by the infamous drive cable off the distributor so that the fuel flow is automatically proportional to engine speed. What we have here is that the basic fuel flow is proportional to engine speed and precise control of the amount is proportional to the air flow into the engine, exactly the situation desired; a constant fuel/air ratio throughout the range. Adjustability and tweaking for different conditions of street driving is by means of an adjustable fulcrum position on the lever between the venturi vacuum and the fuel pressure.

When one modifies this fuel injection system to what was called a “double holer” by adding another throttle body to decrease the restriction to air flow and redirect the flow to what appears to be a better position without a change in direction the idea is to increase the horsepower output of the engine not unlike adding a dual carburetor manifold to an ordinary carbureted engine. There is one significant difference; since carburetors supply fuel to the engine in proportion to the venturi signal, all of which is part of the individual carburetor, no significant difference in fuel/air ratio results from adding another carburetor in spite of the fact that the airflow is effectively evenly divided and each carburetor is only flowing half the air of a single carburetor under the same engine conditions but it only flows half the fuel as well. With the fuel injection each throttle body is also flowing about half the flow and therefore the venturi vacuum generated by the piezometer ring is lower which results in a proportionally lower fuel flow that would cause the engine to be extremely lean and possibly not run at all. The solution to this problem is fairly simple; one needs to make the hole and the nail head covering it on the fuel side smaller so that the fuel control supplies the full amount for the engine despite the lower flow and pressure signal from the venturi. Bernoulli tells us that with half the flow through the venturi the resulting vacuum will be one fourth which means that the force pulling on the lever will also be one-fourth that of the unmodified injector. Therefore the balancing force from the fuel pressure on the other end needs to be one-fourth as well. Since we do not want the fuel pressure to be one-fourth we must make the area of the hole that bears on the nail one-fourth of what it was which means reducing the hole size to one-half the diameter that it was.

Although this modification was pretty simple; all that was necessary was to machine some new parts with the smaller hole, install them in place of the regular parts and the job was done. The problem was that these parts were very, very small and probably one needed a jeweler’s lathe to properly turn them out and The Lathe with it’s 18” swing and six feet between centers was hardly a jeweler’s lathe, but it was the only one I had. Removing the normal three-jaw chuck from the headstock and installing in its place the 1/2” drill chuck that normally lived in the drill press using a big stack of tapered reducers stuck in the big tapered hole in the headstock shaft and turning the rotational speed up to the maximum gave me a way to hold the material so I could turn out parts. Shimming up my tool holder so that I could install tools that I ground from 1/4” tool stock gave me the means to actually remove metal from the little parts that I needed to make. It was a strange sight indeed, me hunched over the middle of this behemoth machine, carefully turning the control wheels to manufacture these tiny parts but it all worked slick and the modified fuel injection performed flawlessly.

In spite of the success of the modifications and upgrades to the Durant Special it was becoming more and more evident that the rear engine machinery was definitely the fast way to go and the real days of glory for the venerable Durant Special were past. Since it was the only race car I had and it was still a hell of a lot of fun to drive we soldiered on and went to all the races but couldn’t win as much any more. Goodbye championship although I did make it to second in 1967. One race in the 1967 season was notable, however, and that occurred

at MAR, our home track against our arch enemy Bobby Aylward. Now Bobby was a well-to-do guy from near Tulsa, Oklahoma that was one of the nicest fun-loving guys I had ever met. He had been driving fast cars for a long time and bought new ones anytime the mood struck. He had had several rear engine cars but they were of the vintage that were never very successful and I was usually able to whip up on him. Rear engine cars had been around since the late fifties and were hugely successful in the small engine classes like F and G modified where most of the cars were those constructed in Europe like Lotus, Elva, Porsche with engines usually less than 2 liters displacement. When guys started putting big American V-8's in these kind of cars they found that very often the car preferred to go ass-end first and be generally unstable and therefore way less successful than their little brothers. When Ford decided to go all out to challenge Ferrari at LeMans and hired, among others, Bruce McLaren, to help with the development of the GT-40, all of a sudden things began to change. First, the GT-40 was hugely successful but the little known facts are that Bruce McLaren also learned from this experience how to make a big engined rear engine car stable and hence FAST. He not only cleaned house in North American Professional Sports Car Racing but also began manufacturing these wonderful machines for the amateur racing folks and Bobby Aylward got in line to get one. When he showed up at MAR with his new machine I looked it over and figured to myself that my days of whipping up on Bobby Aylward were over. Of course I never let onto that in the pre-race kidding around that always went on. One other key thing happened on this same fateful weekend, the now professional stock car racer, John Martin showed up with some kind of strange machine that some of his northern associates had put together. He called it his Gramma car as it was a modest dark blue Nash Rambler two-door sedan with a heavily breathed upon American Motors V-8 under the hood. It also had the suspension redone so it could actually get around a road course in pretty decent fashion but it still looked like your blue-haired grandmother's go-to-the-grocery car. Now the way everything turned out John Martin was entered in the same race with Bobby Aylward and me albeit quite a bit slower than our modified machinery. We set off racing in this race and because of his unfamiliarity with his new machine, or maybe because he had spun somewhere Bobby was behind me but catching up fast. A few laps from the end of the race in the midst of a fierce battle for the lead we came up to lap John in the Gramma car and I noticed him driving a little strangely while looking in his mirrors at the battle behind him and I knew he was fixin' to give me a little help. As I got right behind him he slipped just a trifle wide where I could slip right on by before he abruptly shut the door on Aylward. I knew if I just had a little lead I could win this race so I stood on the gas mightily while John was successful at holding up Bobby awhile without it being real noticeable and I made it to the finish in front with Aylward breathing down my neck. I had vanquished my MIDIV arch-rival in his new McLaren with just a little help from my friends. Typically the big-bore race is the last of the day and my crew and I conducted one of the biggest beer-drinking celebrations ever. This was genuinely one of my biggest victories and certainly a memorable one, one of the highest highs that racing is famous for.

Judy the Race Driver

During the course of this building season, the winter of 1966, 67 we got the bright idea that Judy should go to driver's school in the Durant Special and then she could drive in the Regional races that usually accompanied the National races on a given race weekend at several of the tracks we normally went to with the Regional on Saturday and the National on Sunday. We went down to Lampert Firestone and got her fitted up with a helmet and a driving suit and set off to MAR to give her a try at taking a few laps in the car. She had some experience driving her Healy in autocrosses and gymkhanas so driving a car fast around corners was not completely new to her plus the Durant Special was not a twitchy car in spite of its short wheelbase and formidable power-to-weight ratio so she felt pretty much at home in the car and did fine. On her final lap however the car kind of got away from her on the last corner and she over-corrected which resulted in a quick spin and she entered the woods on the outside of the track going backwards but she had scrubbed off most of the speed and wound up straddling the ditch on the side of the road with the ass-end of the car. This did not particularly scare her but she thought *"Oh shit, Dick is going to kill me!"* Actually I had been following her in the tow car and saw her lose it and back into the ditch and I was pretty sure there was no damage to the car and as I drove up I could see that all was OK with the car but that Judy was pretty shook, not from the spin but from the fear that she had screwed up my race car.

As it turned out the first driver's school that she could attend was right at our home track, MAR. The driver's school routine had changed some from the days when I attended mine in as much as each driver received a personal coach who was a licensed and experienced driver in a similar type car. Judy and I decided that in the interest of our wedded bliss that it would be best if I declined the opportunity to be her coach and Marvin the Jew took the job and did pretty well at it. On one occasion during a practice session as she was coming down the front straight getting ready to enter corner one, for some reason the engine died during a downshift and when the clutch came out in the lower gear it sort of locked the rear wheels and the car spun around right on the inside of the track and came to rest with the engine dead. I could see from the sideline that Judy was dutifully going through the routine to restart the hot engine which was being finicky about getting going again. Since Marvin was either not looking or was unfamiliar with the starting routine, he was standing basically right above Judy's head shouting "Start the engine" multiple times to which the massively frustrated Judy replied "Godammit Marvin, what the hell do you think I am doing." The stubborn engine finally fired and Judy was off albeit quite a ways behind the rest of the field but going again. All things considered she did well in her first drivers school but because of another rule change from when I went, all newbie's had to attend two schools before being issued a Regional license so she was only half done.

The next available driver's school was at a relatively new race track near Tulsa, Oklahoma called War Bonnet Raceway. We went down there to the driver's school and there Judy was assigned Dave Dooley as a coach. Now Dave Dooley was a fixture in the Midwest Division of the SCCA and the driver of an E-

type Jaguar in BP, in fact I think he was John Martin's coach when John went to driver's school. In my role as car owner and chief mechanic I obviously had no control over what Dave Dooley was doing to coach Judy about race driving and most of the time he sat in the little inadequate but required passenger seat to coach her. She even told me later that he gave her something of a scare in the big roundhouse turn at the far end of the track by reaching over and holding the steering wheel as she attempted to turn in too soon. She thought the steering had seized up and was getting concerned when she looked over at him and saw him holding the wheel and grinning. She suffered from the same malady as almost all racing newbie's that involves turning into the apex of a corner too soon and he was giving her a major hint to wait awhile before turning in. During one of the practice sessions I noticed that Judy and Dave were switching positions in the car so that David was driving and Judy was the passenger and I thought that was somewhat curious but maybe he was demonstrating something that he thought would work better that way. At any rate they took several laps that way before they switched back. After completion of activities for the day I was talking casually to Dave and he was sort of reporting to me on Judy's progress and when I asked him about the driver transfer he said that he was showing her something or other and I looked at him grinning and said "Bullshit, you just wanted to try out my car." He looked at me kinda sheepishly and said "Yeah, I have always wondered if that little short car drove as good as it seemed to or if it was you. The thing is remarkable, it really does drive good, handles like it is on rails and is not even a little bit twitchy for such a short, powerful car."

As far as driving the race car on the track Judy did a marvelous job but a number of race related issues began to crop up. She seemed to have all sorts of trouble getting ready to race or even practice, more to race. The typical SCCA routine was to line up the cars on what was called the false grid which was sort of a misnomer because it was not grid shaped. Instead the cars were lined up angled against a fence in the paddock in the order of the grid and usually sat there with the driver strapped in place for ten or fifteen minutes before the command to start engines and move out on the track was given. It was here that Judy would become so nervous that she would be concerned whether she needed to pee or throw up. Fortunately she mastered the nervousness and neither of those occurred. Also during this time, at the War Bonnet driver's school race, one of her competitors that drove a Lotus Seven walked up to her in a sort of cocky manner and told her that although her car was hugely more powerful than his, the Lotus would easily handle better than the Durant Special and she had better get used to following him around the track during the race particularly at the big roundhouse turn on the far end of the circuit. This pissed her off no end but being a newbie as well as a polite person to strangers she did not tell him to go get hosed, but she thought it. Well as luck would have it the race started and sure enough on the first lap the guy in the Lotus passed her up going into the big roundhouse turn and began cruising around in front of her. Little known to the guy or me, for that matter, she was going to school on that guy. It seemed that the big roundhouse bend was the one she was having trouble with all weekend and could not get the hang of it but she thought to herself that if she watched that

guy in the Lotus and sort of followed him through the corner she would catch on to the correct technique and sure enough that worked out, she got more and more comfortable with that particular corner. Getting on near the end of the race she thought to herself, *"It's high time to show that smart-ass son-of-a-bitch where the canoe is parked."* and with that she got up right behind him coming into the last turn which was a downhill hairpin turn sort of like half of the famed corkscrew at Laguna Seca. The start/finish line on the main straightaway immediately followed this corner with the officials on driver's right and the pits on the other side. She went inside of the guy entering the corner and got on the power big time which of course set the Durant Special a bit sideways as she entered the straightaway. She just counter-steered enough for control and came off that corner sideways with her foot buried in the throttle and the big ole 327 Chevy engine bellowing mightily absolutely smoking the guy in the Lotus. Officialdom dived back onto the hillside in a combination of fright, surprise and awe and I, across the track in pit lane, yelled myself hoarse with pride in my fearless wife. She carried on down into the big horseshoe turn at the other end and used her new-found skills to advance her lead even further and from that point led the race into the finish to become the winner overall. What a cool drive, after which she announced proudly "I couldn't let that smart-ass beat me. so I just stood on the gas and that was that."

Her performance at War Bonnet was sufficient to fulfill the driver's school requirements and she received her Regional license so we entered a Regional/National event shortly after War Bonnet at a big airport course at Independence, Kansas. Marrying Judy cleaned up my act a lot from the days of sleeping in or on the thorked-top Oldsmobile and cleaning up in gas station restrooms; we stayed in hotels and took proper showers, went out to dinner and all that kind of civilized stuff. Now Independence was basically a wide place in the road out in the middle of Kansas a long way from anywhere and certainly not on a par with some of the other MIDIV sites we went to like Tulsa and Wichita and so the hotel facilities consisted basically of an historical old downtown hotel right in the middle of town. Beside my crew, at this event we were joined by Emmett Pyatt with his new car that he and I had built and as we all trooped past all the old guys that congregate in chairs outside and in the lobby of old historic hotels like this one Emmett, who was noted for making rude remarks to unsuspecting females, announced loudly that Judy and I were newlyweds and all we really needed was a small room with a bed that didn't squeak. Naturally that got the attention of one-and-all especially the old guys in the round-back chairs who leered lasciviously at Judy who turned red as a beet and sincerely wished that she could kill Emmett. All the other guys, except me who would have been in a huge doghouse, laffed their asses off which, of course did nothing but encourage Emmett who responded with some more of his off-color remarks. It was an experience that was never forgotten.

The schedule at Independence was typical of those race tracks that hosted Regional/National race events with the Regional on Saturday followed by the National on Sunday with both of them available to nationally licensed drivers. This made the practices and races on Saturday open to drivers with hugely

greater experience than the newbie's recently out of just two driver's schools. Judy went out for practice with the Durant Special and had a good time since it was obvious that the wide expanses of concrete that make up an airport circuit left almost no chance of hitting anything solid and screwing up the race car. She especially liked the long open straightaway where she could let the car cruise at full speed and was somewhat astounded when I told her that her rpm in top gear on the straight corresponded to something in excess of 150 mph. She had never before gone quite that fast.

Prior to the race that afternoon Judy seemed to be over at least the puking part of her pre-race nervousness but the have-to-pee part persisted. A new nervousness took over when she realized that a number of National drivers were in the lineup who she figured would storm by her immediately and that there was no way she could hope to repeat her overall victory at War Bonnet. The key figures in this veteran lineup were Jack Hinkle and Ed Walsh, both of whom she had met and knew. These two were not only extremely wealthy and had been around racing forever, both had owned Indy cars and had been racing and winning driving sports cars since right after WWII but still enjoyed having fun. Unbeknownst to Judy these two jokers had arranged to do whatever they needed to ensure that Judy led the first lap of the Regional and then let it proceed as it might. It was both exciting and puzzling to Judy that when the green flag flew she led the pack around and took off down the straightaway leading the race with the rest of the pack far back in her rear view mirror. Later on when the rest caught up to her and relegated her to a position more in line with her car and experience level she began to catch on that they had pulled a fast one on her. After the race she asked me what was going on and I had to fess up to her what they had done but about that time they came up with big shit-eatin' grins on their faces and gave her a big hug and she forgave them. It sure was her big day for awhile.

This race was, unfortunately, her swan song in being a racing driver. She had made up her mind that, although she had never been scared on the track and was having a big kick out of racing, she was doing it in my race car and if she messed it up on Saturday I would not be able to race on Sunday. This was always on her mind and therefore she never was able to hang it all out and be competitive as long as she was driving my race car and we could not afford two race cars so she decided to quit instead. What a sweetheart!

The Rest of the '67 Season

A couple of things worth mentioning happened during the sort of lack-luster 1967 season. As I mentioned above, in spite of the Durant Special being pretty much outclassed by the rear engine machinery we went to all the usual races because racing is fun. For a third season in a row I also drove Ed Alsbury's up-graded Jabro-Alsbury Saab in all the HM small bore races. This car was also basically old and out of date but had no overwhelming competition from new designs quite like the McLaren's in the CM class. Edgar had spent the winter strengthening up the old girl so it would not fall apart when driven hard so in spite of it being outdated at least I could get it to the finish in keeping with the old saying "you can't win if you can't finish." The other thing that happened during the previous

winter building season was that Edgar kept experimenting with the little three cylinder SAAB engine that he had been using in his car from the beginning. This engine comes from a SAAB 93 which originated in 1957 with a 750cc two-cycle engine which conveniently fitted into the SCCA's HM class which at the time had a displacement limit of 750cc. SAAB, or morphed to Saab, was a Swedish car built as a diversification project by the **S**venska **A**eroplan **A**ktie**b**olaget (Limited), hence the capitalization. (if you choose) Sometime in the 1960's the displacement was increased to 850cc which roughly corresponded with the same displacement increase in the SCCA rules for HM making this engine into a candidate for the home builders of these small modified race cars. It was definitely a good choice for Uncle Ed Alsbury since he had been a two-cycle engine guy for years, back to Evinrude 4 cylinder Speedifour outboard engines that powered early hydroplane race boats. I think that he even built an early HM car with an outboard boat engine. A two-cycle engine (more properly two stroke/cycle) is a gasoline powered engine that fires on every stroke as opposed to the more conventional four stroke engine that fires every other stroke using the stroke between the firing strokes to handle intake and exhaust. Obviously firing on every stroke carries with it the possibility of producing twice the horsepower for the same displacement so it has real potential for displacement limited racing. The other thing that is also immediately obvious is that fitting the obligatory intake, compression, power and exhaust into two strokes takes some doing. Cleverly two stroke engines use both ends of the piston to accomplish this action. As the piston goes up, fuel/air mixture is sucked into the crankcase by the bottom of the piston and as the piston comes down the mixture is pushed into the cylinder above. One of the methods controlling the timing for all this action is by carefully placed and sized ports in the cylinder wall. The Saab engine is a three-port engine having intake, exhaust and transfer ports in the cylinder wall, the opening and shutting of which uses the piston as the valve. For example, the piston closes the intake port about the same time as it opens the transfer port so that the fresh new mixture that was drawn into the crankcase through the intake port does not go right back out through the carburetor but up into the cylinder. The transfer port must then close so that compression, firing and the power stroke can take place after which the exhaust port opens to expel the combustion products out of the cylinder so that a fresh charge can be taken in. Obviously there is some overlap to make all this happen in one revolution of the engine. Tricks like gas inertia, exhaust tuning help out along with a certain amount of alteration of the port size and location to make a street engine into a high revving race engine that makes much more power than its street brother. Not unlike increasing the compression ratio of an engine by altering the volume in the cylinder head, performance enhancement can be achieved by altering the volume of the crankcase. Use of the crankcase as part of the engine function of course means that lubrication of the rotating and reciprocating parts must be different than a four stroke engine, the most common being addition of the oil to the fuel so that the mixture acts as the lubricant and the cooling medium for these parts. This leads to an entirely different kind of bearings for both the rods and mains, usually low friction bearings like ball or roller which, of course, lead to

a different design for both the rods and the crankshaft. The rods of the Saab are one piece utilizing short rollers for bearings and slid over a pin pressed into a side plate on each side. I think this arrangement of a pressed together multi-piece crankshaft assembly was never considered serviceable so replacement parts were not available nor was any factory manual available for the procedures involved in disassembly and reassembly of the crankshaft, rods and main bearings. Uncle Ed was one of a few guys that were able to successfully take apart and put together these assemblies. He was especially adept at coming up with special tools that he made for specific jobs, like two modified engine blocks with the main bearing area cut away on each end into which he would set the shaft and tap and hit on the crankshaft cheek plates, using a dial indicator get all three cheek plates and main bearings to run true. He was such a master at aligning things to run true that he never used a three jaw chuck on his lathe because he thought three jaw chucks never ran true enough to suit him. He formed a good business with local Saab repair shops where they would send him some cash and 2 bad shafts which he disassembled, inspected and chose the good parts and sent them back one serviceable shaft. What ever was left over was his supply of parts that supported his race engines. In addition to dealing with the lower end, Edgar knew how to get inside the cylinders with a selection of grinders to modify the ports for higher performance. Over the years he became an expert at this and he was able to give me enough power to easily outdo the other Saab powered machines. One time I had the opportunity to look down into the cylinders of one of his engines and I was flabbergasted, it looked as if there was considerably more port area than metal area. I sort of wondered how the hell that worked with the piston rings and other moving parts but my job was to drive the car not engineer it, that was Edgar's job.

The end result of Edgar's winter effort in the winter preceding the 1967 season was an outdated race car that was reliable and fast enough to win a whole bunch of races and end up being the Midwest Division Champion in HM. Ed and I were proud of this achievement, as a team we had become a power in the HM class, at least in the MIDIV. This championship offered us the opportunity to go to the runoffs at Daytona but we decided not to do that because both of had to get to work on new cars that were more competitive for the oncoming 1968 season.

Epilogue

This section is titled "Stepping Up" and maybe, in retrospect it should be stepping up and out. Clearly I stepped up my game from the previous section which describes the struggles I went through as opposed to this section where I rose to the top of my game and became a relatively steady winner in more than one class of racing. It also shows how fast fleeting fame can go away due to the ever present progress in technology in the racing business and the need to keep up or get out. Another step up was to get married to my wife Judy and abandon the unwashed life that has been more-or-less my trademark ever since I started racing and adopt a lifestyle much more suited to the professional that I was in my

chosen engineering employment and was striving for in racing. Stepping out is illustrated by the noticeable increase in my skill levels in building and maintaining race cars and the ability to recognize when a piece of equipment has reached the end of its useful life and needs to be replaced by something that gets me back to my winning ways. In keeping with these abilities is also having a well equipped shop in which to build and assemble the new machinery without groveling on a dirt floor. All this was accomplished and the next section will describe the journey to even greater successes.