

**Carbir**  
RACE CARS inc.

**USA F2000**  
NATIONAL CHAMPIONSHIP

**Driver Update** 3/30/99

**Jeff Glenn**

**IRL 200 at Phoenix International Raceway Race 1 3/28/99**

### **Getting Up To Date**

Carbir Race Cars has been busy over the off season putting together the ingredients for our assault on the 1999 United States Formula 2000 National Championship. Carbir has made many modifications to the original DS3 F2000 car that we ran in the last few events of 1998.

**The Car:** Modifications include a redesigned engine compartment that utilizes the engine as a stressed member of the chassis. This configuration allows the headers to run closer to the engine, and the bodywork to move inward, for aerodynamics. The frame has also been changed around the cockpit to allow for more driver room. The major appearance difference between the 98 car and the 99 is the lower engine cover, and revised headrest area. In our winter testing (done with the 98 prototype) we discovered some significant gains in the shock package

**The Team:** We have expanded our racing empire. This year's F2000 team is a two driver, three car circus. The steering wheels of Carbir's two factory cars are turned by myself and Galen Puccini, 23 from Simi Valley CA. The team is owned and managed by Carbir Commercial Director Brian Utt. The F2000 effort is based out of Crew Chief Dan Campbell's shop in Black Earth Wisconsin. Dan brings a wealth of knowledge and experience to the team; he ran Steve Knapp's winning F2000 effort in 1996. Assisting Campbell in the shop and at all events is lead mechanic Tucker Merten. Tucker was involved in the Bowman F2000 program last year. Assisting the team with data acquisition analysis, and driver coaching is Carbir Race Engineer Eric Purcell. Carbir will have two new '99 chassis plus the '98 car as a backup for the second event in Charlotte NC in late April.

### **Carbir testing and development:**

Over the winter, Carbir has spent significant time updating and revising the original prototype. You can never do enough testing, but we did get a chance to play with the shock package on the F2000 car at Buttonwillow (near Bakersfield CA.), and decided that it would be advantageous to change to Ohlins from the JRZ's. We also tried alternate rear wing elements, and made some gains with regard to steering geometry. About three weeks ago we brought the F2 car to Mesa Marin, a 5/8 mile oval in Bakersfield, primarily to get Galen out on an oval for the first time.

I also did the development testing for the Sports 2000 American City Racing League Carbir team. The majority of testing was conducted at Buttonwillow also. In one three day test, we made over 1.5 seconds gain with the cars. We

followed this test with a potential customer test in Portland, where on a damp track, the car was within striking distance of the dry track record. The ACRL team is based out of "Carbir West", the team's shop in Portland OR. The crew includes Mark Cezon, John Fossi, and Richard Jackson. Eric Purcell is also engineering the ACRL cars for drivers Chris Ronson and Fiorenzo Tirinanzi.

### **Leading Up To The Event.**

Unforeseen delays in a couple of parts for the '99 car dictated the course of events for this first event. The original plan was to have two new chassis completed for the first race, and we would have the '98 car as a backup at the Phoenix race. We had also hoped to have the cars completed in time to shake them down on the way to the event. A couple of "Just In Time" delays changed our plan of attack. Dan and Tucker ended up working day and night to complete chassis 99-001 in Wisconsin. The '98 car was prepped in Portland, and the two cars were brought directly to the race from opposite ends of the country. We would run one new car and last years car. It was my decision to go with the new car. The Thursday and Friday before the event, Galen and I went back to Dan's shop to be fitted to the new chassis. The bodywork was not completely finished, and the car had two of four corners. Dan and Tucker completed the car Sunday night, and rolled out for Phoenix on Monday morning. At this point, the shakedown was going to have to happen at the event on the series test day.

### **Phoenix AZ. 3/23-3/28**

Galen, Brian, myself, and my mom arrived Tuesday night. The trailer from Portland with the '98 car arrived Wednesday morning, and Dan and Tucker rolled in early afternoon. I talked to Dan before he arrived, and my mission for the morning was to find lead shot; the car was at least 40 lbs light, and we needed ballast. I ended up at the Track and Skeet club in Western Phoenix, in the middle of a skeet shooting competition. This was rather surreal, with giant game heads mounted on the walls, hundred of gun-toting, retired ex-military types padding around buying thousands of rounds of ammunition. My purchase of the lead shot was interrupted by the National Anthem. I got out without getting shot; later we set up in the paddock, and applied stickers to the new car.

**The test day** was very eventful for the new chassis. I began the procedures for breaking in all of the systems; differential, brakes, etc. 15 laps into the session, I noticed the tack had died, and the car stuck in third gear. The gear selector had moved into the neutral gate, but the selector fork had remained engaged. We took care of that, then ran the car up and down the paddock to check. It would shift, but there were terrible noises coming from the rear end. The gearbox was opened up, and we found that the pinion bearing had failed. Dan and Tucker did a lightning quick gearbox change, and had the car ready for the next session. The tack problem was independent of the gearbox, and we went out again to start the break-in with another brand new differential. I circulated the track, barely got the car up to speed, when we started having electrical gremlins. In the meantime, Galen was getting acquainted with the track in the '98 car with no problems. We lost some time in the second session, thought we had things fixed, then had the problem come up again. In the meantime the tachometer

problem was fixed. We tried again to get out, and the car ran for a handful of laps, but when I came into the pits, it acted up again. Two batteries later, we realized that the battery mount literally clamped the battery down too hard, and was shaking the internals apart. This was rectified Thursday evening. The teething put us behind the curve on the setup, and without a computer on board the new car, we knew we had our work cut out for the remainder of the weekend. In the last session on Thursday, Galen ended up backwards into the wall, he lifted off the throttle a little abruptly, and spun. The damage was limited to rear wishbones, a wheel, and a wing mount.

Thursday evening Christine and my dad flew in, and Bill Freed came into town in his rented Infinity QX4. The schedule for the rest of the weekend consisted of one session per day until the race.

**Friday Morning** both cars went out, and the new one ran flawlessly. We continued to make changes to the car, and made some progress. I still needed to find over a second. My car was working the front tires too hard, and was pushing. We identified a bunch of changes to make, and had to wait until Saturday to try them. Dan finished up with the car early in the afternoon; I went for a bike ride.

**Saturday:** John Ostlund of my sponsor KJWL radio arrived with guests to see the new car's first outing. It rained Friday night, and the track was cold and didn't have much grip in the morning. On my second lap out while going through turn 2, the car pushed high, and I got out of the gas - I spun but was lucky enough not to collect the wall. The car was still pushing, and we continued to make adjustments, but ran out of time in the session. We decided to make several small changes before single car qualifying. Like any other oval, cars qualify one at a time, in two flying laps. The best lap is counted. The order was determined by drawing at registration. I drew the 6<sup>th</sup> spot. Galen drew 28<sup>th</sup>. I went out and felt pretty good, but I lifted too much on my first lap as I came through turn 1. This hurt my momentum for the second lap, I ended up 14<sup>th</sup> out of 34. I was still roughly a second off of the pole. Galen did a good job in his first ever attempt at oval qualifying and ended up 17<sup>th</sup>.

**Sunday Morning Warm-up** was a 15 minute session, broken up by one or two yellow flags. The car felt very different than the day before. It was pushing even more across the middle of the corner. In qualifying it had not been so pronounced. Friday the car had pushed throughout the entire corner, and we had reduced that by qualifying, but the different rubber on the track from the IRL cars had made the car "tight" just after turn-in. We made more changes prior to the race. Galen had also complained of his car changing, but his car went the other way - it was loose in the warm-up. His car had a different set of tires, and we found that the set that was put on for the warm-up had the wrong amount of stagger.

**Race Time - 12:00pm. Scheduled Distance: 50 Laps.**

I was on the radio with Tucker and Eric, who was at the top of the spotter's stand above the turn 1 grandstands. We got the green flag, and I got a pretty good start. I think I may have picked up a spot, and I stayed on the outside. As we came around turn 4, cars were three wide. I saw the car just ahead of me and to the inside start to spin, I straightened the car a little, and got by. I was later told that the car outside of me spun also, and I went between the two. It was really close. The result was a crash on the front straight. This brought out the yellow flag and the pace car. After several laps of yellow, it went green again. I got a great restart, and moved by several cars into tenth position. I let the crew know that the car (at this point) felt better than it had yet. Another crash brought out the pace car. Unfortunately Galen was a victim of the chain reaction; he came up on the accident as it happened, slowed, and was hit from behind. The car behind climbed up over the rear wheel of Galen's car and somehow punctured the side cockpit with its gearbox and tailpipe. The other cars in the incident Galen was trying to avoid were pretty mangled, and a lengthy yellow ensued. When we went green, everything went slowly downhill. Within three laps my right front tire blistered and began to shake as pieces of the tread tried to leave the tire. At the same time, the car began to push on the overheated tire, and the turn 1 and 2 combination got slower and slower as I had to back off of the throttle more and more to get the car through the corner. Three cars went by, and I just rode it out until the end of the race. I ended up 13<sup>th</sup>, a lap down to the leader.

Our results did not set the world on fire, but the accomplishment of having the cars at the event should not be overlooked. Considering the teething problems that we dealt with on the test day, and without data acquisition, things could have been worse. The new car came back without a scratch. The '98 car wasn't so lucky, but most of the damage was superficial. Galen ended up with torn tendons in his shoulder (from being hit by the other car) and will have to refrain from moving it too much over the next two weeks. Hopefully it will heal quickly, and he will be ready to test before the next one.

The plan for the immediate future is to sort out the gearbox that ate the pinion bearing, build the second new car for Galen, shake down that car, and get the computer systems into both new cars. Oh yeah, we need to get both new cars and the backup painted as well.

Next is the 1.5 mile oval at Charlotte NC, which will be a double race - Friday April 30<sup>th</sup> and Saturday May 1<sup>st</sup>. We should run a chicane configuration, and restrictor plates in the carburetors. This is the best group I have worked with to date, and I am confident that we will be once again on the front side.