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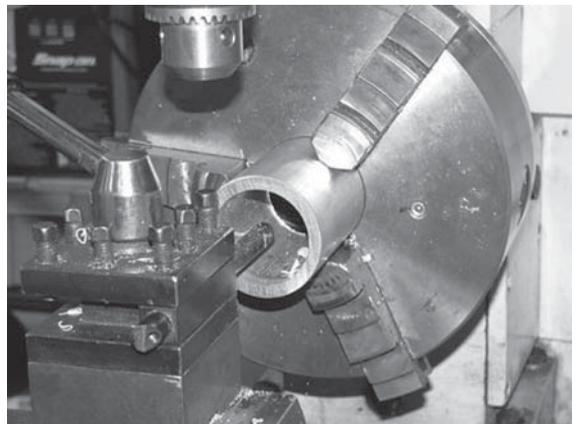
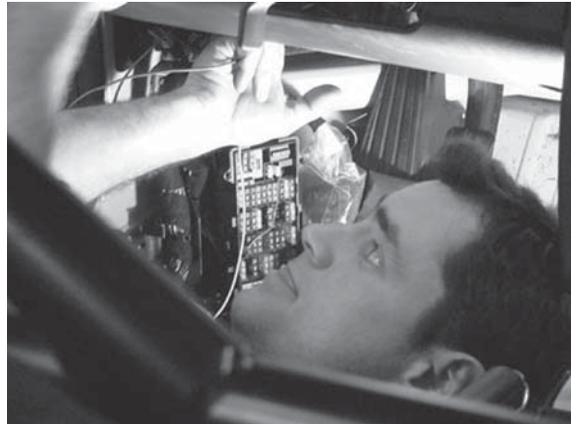
## 30 days to sebring

### *The Mantis Cayman S Project - Part 3 - We made it to Sebring*

**By Ernie Jakubowski and Stan Carmichael; Photos courtesy of the authors**

After rushing to re-assemble the car for its unofficial first public display at Pfaff Porsche we took some time off to re-organize and plan the completion of the new Cayman S racecar. We had discovered many unidentifiable computer code faults when we re-assembled the car. Not knowing the cause we decided to leave the car at Pfaff for their technicians to diagnose. What they discovered was that one of the seven linked computers was left un-attached; it was the airbag controller that we assumed would not be necessary because we now didn't have any airbags in the car. Wrong again! The new cars have many computers that perform a variety of functions for managing the engine to monitoring the cars speed, cornering attitude braking etc. These computers are interconnected and they are in many cases interdependent. When we unhooked the airbag computer we caused the other units to notice that it was missing, this caused a never-ending series of error codes from the remaining units. As it turned out we didn't need to re-install the airbags, just re-install the controller and all of the computers became happy again.

On Wednesday the car is back in the Mantis shop and we prepare for the final sprint to finish the car, we leave in six days. The LEDA suspension has just arrived from England, we begin to remove the stock suspension parts and prepare to install the racing units. They don't fit. The lower tubes are smaller than the stock units. We are forced to fabricate shims from aluminum tubing to fit the new dampers, one day lost. We also have to



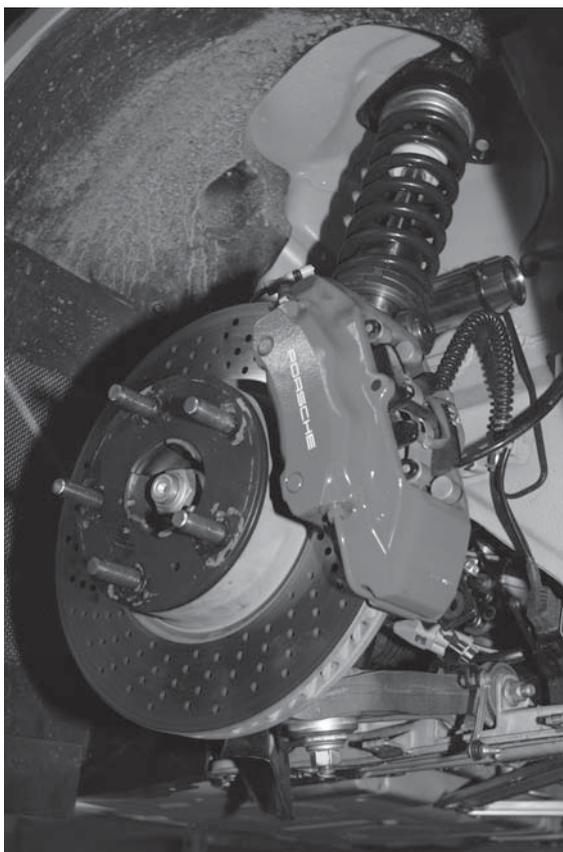
> remove much of the interior in order to re-connect wires and cables that we have left unattached. The hand brake is one; since we have to remove the rear brakes to install the suspension we left this unattached. We also have to install the two way radio, safety equipment (belts and fire extinguisher), water bottle for driver hydration, complete the removable steering hub assembly and install the emergency power cut-off switch and connect the transponder for timing and scoring.

Now, it's Friday and the suspension is coming together, a dry fit of the racing wheels produces a moment of anxiety. They don't fit! Well, they will fit but require spacers to clear the bottom spring perches. We had ordered 8" long springs where 6" would have been better. We can't get them by Monday so we have to make these springs work. Spacers would solve the problem for now but we would be unable to lower the car as much as we hoped. The front sway bar was also causing some concern.

In Europe racetracks are very smooth, in North America they are not. This leads to two different philosophies in the basic set-up of race suspensions. Stiff springs and weak sway bars vs. softer springs and strong sway bars. The latter being used more in North America in order to help absorb the bumps (softer springs) and still reduce body roll (stronger sway bars). I had installed a 27mm sway bar in the rear and had ordered a GT-3 front bar that I assumed to be larger and able to fit on the Cayman S. It was the same size as the Cayman's stock bar. We now had an imbalance front to rear. I welded an attachment point for the front drop links about half way between the bars end and the main sway bar. This would reduce the leverage on the stock bar and make it behave as a stiffer unit.

It is now Saturday February 4th, the build is beginning its fourth week. We have most of the equipment installed and the interior is mostly in place, the suspension is finished and now we start the process of alignment and corner balancing. This is one of the final and most crucial parts of setting up a racecar. You will recall that our car must weigh 2954 lbs. Now we measure the weight again, anything less than our mandated weight will have to be added with ballast, lead securely fastened in the passenger compartment to compensate for the weight we have removed from the car. We weigh 2890 lbs. and add 65 lbs to the car, less than we had suspected. Now we can set the ride-height on all four corners, ensure we have a half tank of fuel, and put a dummy driver in the car to replicate the weight balance of the car in action on the track.

Guess who the dummy driver is, you got it, good old Stan. Here I am with only a copy of the PCA Club Racing Rule Book to read (Ernie thought if I read it a hundred more times I would find something we missed). The process of corner-balancing the car is not complicated to understand, you adjust the ride height independently on each of the four corners until you have the required fore and aft weight distribution and almost equal weight distribution from left to right. Simple isn't it? Well, it is



until you have a car that you have never tuned before, have been working night and day for three weeks and it's late on Saturday evening.

In order to corner-balance a car you put scales under each wheel, these scales are connected to a digital readout unit that will display the individual weight on each wheel, the front to rear weight percentage, the total weight of the car etc. The >

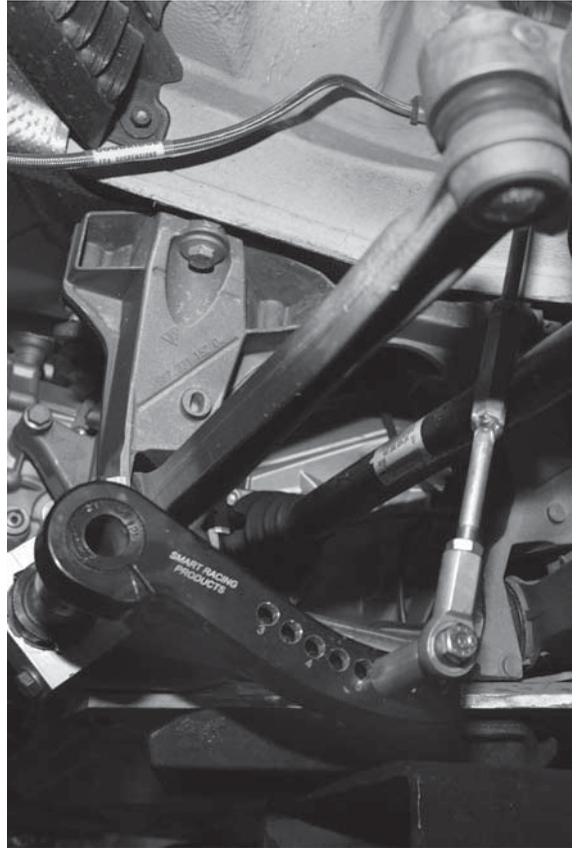
> car needs to be absolutely level for this operation, which is why we use an alignment rack. Ernie is studying the weight readout and then adjusting the ride height of one wheel at a time in order to transfer weight to or from that wheel. This process continues until there is nearly the same weight on the left and right side and we have fore and aft distribution of approximately 55% of the static weight on the rear. Just like Porsche intended. I read the rulebook for three hours! I thought rigor mortis would set in, there is not much movement permitted by a race seat. While I was sitting in the car Ernie and Tom Dueckman, who would crew with us at Sebring, tweaked and adjusted the suspension, scratched their heads and told me to be quiet and read the rulebook yet again. They were having trouble getting enough weight to the front right wheel. Finally they got it close and I was released from my perch high above the activity on the shop floor. The suspension was set, not as good as we hoped but as good as we were going to get it.

Sunday brought renewed enthusiasm, as the car was almost ready. The build schedule was no longer used, now we have all of the pieces still to be fitted laying on a table or on the floor next to the car. If you can see something, install it! We test the radio, the gauges and instrumentation. We test everything and then again. What did we miss, what is left to do? Not much; indeed, we know we probably missed something but in a little over three weeks we had accomplished our goal. The car is finished, rolled back on the alignment rack where, on Monday, it would receive a final four-wheel alignment in preparation for its ultimate test 1,200 miles and four days away. The beer tasted especially good that night.

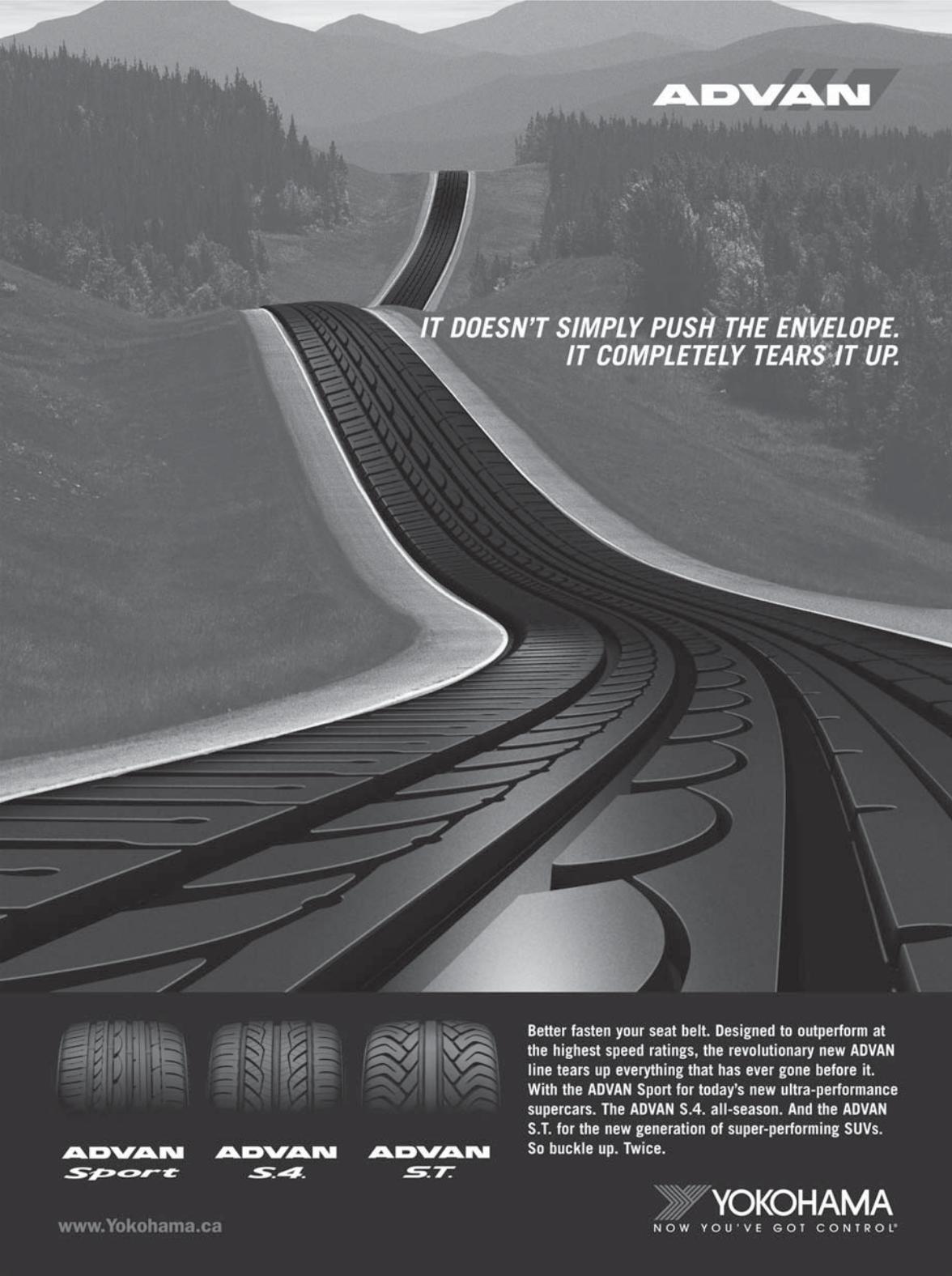
On Tuesday February 7th, one day ahead of schedule, the car was packed in the trailer and Ernie, accompanied by Bill Comat and Richard Burpee began the two-day drive to Florida. Tom Dueckman and I would leave on Wednesday; we would meet on Thursday afternoon in the Sebring paddock.

As we drove through the main gates of historic Sebring, up over the bridge and turn right into the paddock, we passed the big trailers; Kelly Moss, The Racers Group, Porsche Motorsports and Farnbacher-Loles - every one is here! New 997 Cup cars! 996 Cup cars! I don't think Tom realized that Porsche made so many racecars. This is his first visit to a PCA Club Race; he picked an impressive place to start. Down the paddock, near corner sixteen, we found the MantisSport trailer, the Cayman S parked under the awning, just waiting to begin its race career. Friday morning is frantic; organize the crew and responsibilities, check the tire pressures, the suspension settings, record the setting and prepare for the first practice of the weekend. Do we have any fuel in the car? At 09:00, right on schedule, Ernie drove his new car down the pit straight, into corner one. We made it!

I was on the radio to Ernie, reminding him of our goals for this session, five hot laps and into the pits to check the tire pressures



and temperatures. Bill was ready to time each lap while Tom and Richard would go over the wall to measure the temps and pressures. I would count the laps and record the data. There would be four sessions today, about twenty-five minutes in length, allowing between 8 and 10 laps in total for the 3.6 mile circuit. After the first session, we made the requisite adjustments and prepared for the next session. Tire pressures looked good; the temperature readings across the tire tread were promising but our lap times were slow. Ernie drove hard the second session, pushing the car to the limits. The limits came too soon. He was having great difficulty putting the power down and the PSM (Porsche Stability Management) was kicking in mid-corner, even though we had turned it off. We tackled the suspension issue first, softening the damping and the sway bar in an attempt to gain more grip for the rear tires. The PSM issue stumped us for a moment, until I recalled a conversation I had with Rick Bye on the subject. Rick told me that, unlike many other car manufacturers, Porsche allowed their PSM to be turned off and stay off, even when in extreme cornering conditions. Until you touch the brake pedal! You see, Porsche engineers figure that the last thing we are going to do before we crash a car is step on the brakes. They are just >



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> trying to help. Ernie uses the brakes to settle the car on corner entry, not unlike many experienced race drivers, and like most fast shoes he enters the corner at or just above the limits of adhesion. Thus, when he taps the brakes to settle the car down on its path to the apex he was engaging the PSM and was no longer in control of the vehicle; it just started to modulate the brakes and ignore his throttle commands. Ernie and Richard pulled a series of fuses to disengage the PSM over-ride and now Ernie felt he could actually drive the car.

Friday has been a busy day at Sebring, we are all tired and Ernie and I are showing some disappointment. We are not disappointed in the crew. They were great. We are not disappointed that we had to make adjustments or that they weren't right the first time, we have more experience than that. We were disappointed because we knew, after four sessions on track that we would not threaten the leaders in the race tomorrow. We were seven seconds adrift. In racing seven seconds is a lifetime. Ernie realized it first, he was driving the car after all, and I realized it when he told me he just wanted to have the car in shape to race on Saturday. We would minimize the shortcoming we could and let him do what he does best. Race!

Don't let Stan get you too depressed. Yes, we were slower than we wanted to be but this is our first outing with a new car. Normally we would want at least two test sessions before we race. One to learn what we were now learning, and a second to confirm we have made the correct adjustments. This weekend is a test session with two races for us, now we are really learning. The car isn't that bad either, it pulls down the straight with as good as any of the other "D" class cars, the gearbox is great. We just need to solve a few little details so I can wring the last few seconds out of it. Every session out we are going faster, we never went backwards for the entire weekend. I made a mistake when choosing the spring rates, too soft on the front and too stiff on the rear. Not by much, but enough to prevent us from finding the balance required. The guys did the best they could do with what we had at the track and I raced my new car. We were not the slowest car in our class, just not the fastest. Yet. We found seven seconds a lap over the weekend. I raced twice finishing 4th and 7th, not bad for a new racecar and competing against a strong field as well. Overall, I am very pleased with the new car and proud of the job we have done to prepare it for racing. We are suffering from throttle over-steer on corner exit and I am concerned about the PSM issues we have encountered. I think spring rates will change this. The engine and drive-train are great but we did see some high oil temperatures, perhaps an oil cooler will help when we race in warmer weather. Before our next race at Road Atlanta, I would like to fit shorter springs to the car. This will allow better clearance to the inside of the wheels and allow us to lower the ride height a little more.

It has been an amazing and rewarding experience, to get a new car, prepare it and race it all in thirty days. The most gratifying

part, and I think Stan will agree with me, is the amount of attention we drew in the paddock at Sebring. Parked in the far corner away from all the big name teams we were inundated with visitors all weekend. It seemed like one of us was working on the car while the other conducted tours of the new Cayman S, explaining what we did and answering all kinds of questions. We may not have won this weekend but we did turn a lot of heads. Ernie is right, we did turn a lot of heads and we did a good job on building the new car. It's not perfect but it showed promise, and we did get faster every session. It is as beautiful on-track, as it is in the paddock; you can easily pick this car out in the middle of a pack. What we lacked in speed we made up for in style.

So now we have a racecar and Ernie has become the first to drive the Porsche Cayman S "In Anger". We will continue to tweak and refine this car and I am sure we will see our first podium and victory soon. With races at Road Atlanta, Lime Rock Park and Mid-Ohio scheduled prior to our two "Home" races at Watkins Glen and Mosport this summer, we will have plenty of time to perfect the car. When we decided to build this car in December, I made the silly decision to share the process of building a racecar with our friends at UCR. Silly, not because it was a bad idea, but because I didn't realize the time it would take to document and write these articles as we worked hard to prepare the car for its debut. Both Ernie and I are grateful we made the effort and we both hope you have enjoyed sharing our journey.



# mantisSport grabs defeat from the jaws of victory

**By Stan Carmichael, UCR Member at Large**

Connecticut Valley Region played host to PCA club racers at scenic Lime Rock Park April 28th and 29th. MantisSport made their first visit to Lime Rock for this event which is the first club race of the season in Zone One.

After a very successful test at Mosport on April 9th courtesy of our friends at Bartling/Group 88, The MantisSport / Pfaff Porsche Cayman S appeared to be up to the task at Lime Rock. After struggling to meet the strict noise regulations at Lime Rock Park (90 db) on Friday, Ernie Jakubowski set a quick time on his second hot lap in qualifying Saturday to claim the Cayman's first class pole of it's short career. From here our weekend went downhill in a hurry.

The car was good, no better than good, as we continue to refine the set-up and gain more experience. Ernie got a good start in Saturday's sprint race and was running strong in second place at the half way mark when he pulled into the pits with an oil leak. This began a hectic two hours to diagnose and repair a missing camshaft

seal, which caused oil to leak onto the exhaust system. Mantis Sport crew members Richard Burpee, Gunner Jakubowski and Ernie worked frantically to repair the car in time for our 4:30 Enduro start. We made it with 2 minutes to spare.

With the advantage of using our earlier qualifying result to grid the one-hour Enduro all looked well for MantisSport to claim the first victory for the Cayman S racecar this weekend. Ernie was running well and lapping with some faster "C" class cars for the first 10 minutes, turning respectable 1:02's on the mile and a half circuit and maintaining a 20 second lead in "D" class. Then the lead began to dwindle as lap times approached the 1:04 area.

I made the call to have him pit earlier than we had intended as I thought there might be something wrong with the car at the 22-minute mark of the race. We checked the tire pressures and cooled off the driver and then I made a fatal mistake, I sent him out one minute early. I never second-guessed myself, as I

have never mistimed a pit stop in my life! As a result of my error Ernie was black flagged and forced to sit in the penalty box for the one minute that I miss-judged. The long and frantic day had taken its toll on the MantisSport team and I was at the helm of the sinking ship.

Ernie also showed signs of frustration and made a rather quick exit from the penalty box at the far end of the pit lane. When I stormed into the tower at the end of the race to inquire as to why we were penalized, the race steward quietly asked me where I would like him to start. Not a good sign. I had no choice but swallow my pride and thank him for his clear and concise assessment of our performance.

The result was a disappointing second place finish, our first podium but not the result we knew we were capable of on this weekend. Was Ernie pushing too hard for our first victory? Were we all stressed after our trying day? Was I guilty of assuming that we could do no wrong? Probably yes to all, but in order to win you first must lose, and lose we did



**The MantisSport Cayman S at Road Atlanta in early April, 2006**

at Lime Rock. Even with our lead dwindling, I still believe we had our first victory in-hand and I let it slip away. Lesson learned.

This lesson we now take to Mid-Ohio Sports Car Course on May 13th and 14th. After spending more time in the car at Mosport, the MantisSport team heads to Mid-Ohio with renewed enthusiasm and confidence. We will be joined there by our friends; Tim Sanderson will make his second start of the season in his 996 "C" class car, Scott Gerard and Bill Comat will drive Mike Mallais' 944 "I" class car and Niagara Region's (but UCR regular) Brion Charters will be there with his "E" class 944 turbo.

Mid-Ohio is a track Ernie has some experience on, he claimed two victories in "G" class last year there. The car is getting better as we continue the development process, the team and its crew chief have suffered the embarrassment of defeat and it is forecasted to rain all weekend which may give us an advantage over our turbo-charged competitors. I feel really good about this weekend.



# cayman s scores maiden victory at mid-ohio



## By Stan Carmichael, UCR Member at Large

The long journey began only four months ago. February 10th 2006 the MantisSport/Pfaff Porsche Cayman S made its first race start, on May 13th 2006 at Mid Ohio Sports Car Course it earned its first Porsche Club Racing "D" class victory. After the heartbreaking defeat at Lime Rock last month my predictions came true, cool rainy conditions that forced the crew to make the right tire choice and Ernie to drive in changing grip conditions. Both the crew and Ernie passed the test this weekend.

We were joined at Mid-Ohio by our friends. Tim Sanderson made his second start of the season in his 996 "C" class car, Bill Comat and Scott Gerard campaigned Mike Mallais' "I" class 944 and Brion Charters from Niagara Region drove his "E" class 944 Turbo. It was nice to have them with us in the paddock this weekend.

Tim endured an up and down weekend. We called for a tire change on Saturday, wet tires off and dry tires on, at the last minute. Arriving late to the grid forced him to start from the back (Ernie was late as well but didn't suffer as severe a penalty for some unexplained reason). Tim drove a solid race to finish 2nd in "C" class. On Sunday, problems with the car in qualifying forced Tim to the rear of the grid again. Another stellar drive earned him 2nd in class and 6th overall.

Mike Mallais played car owner this weekend, his two drivers were Bill Comat and Scott Gerard. They have plenty of experience in this car as they both campaigned it last season. Mike drove the car in the DE event the two days prior to the race. In the Enduro race on Saturday Bill Comat finished 6th in class and 44th overall, under-steer in the carousel and keyhole corners

denied him a good run onto the two straights. Scott encountered the same problem in the wet on Sunday where he finished 6th in class and 23rd overall in the sprint race.

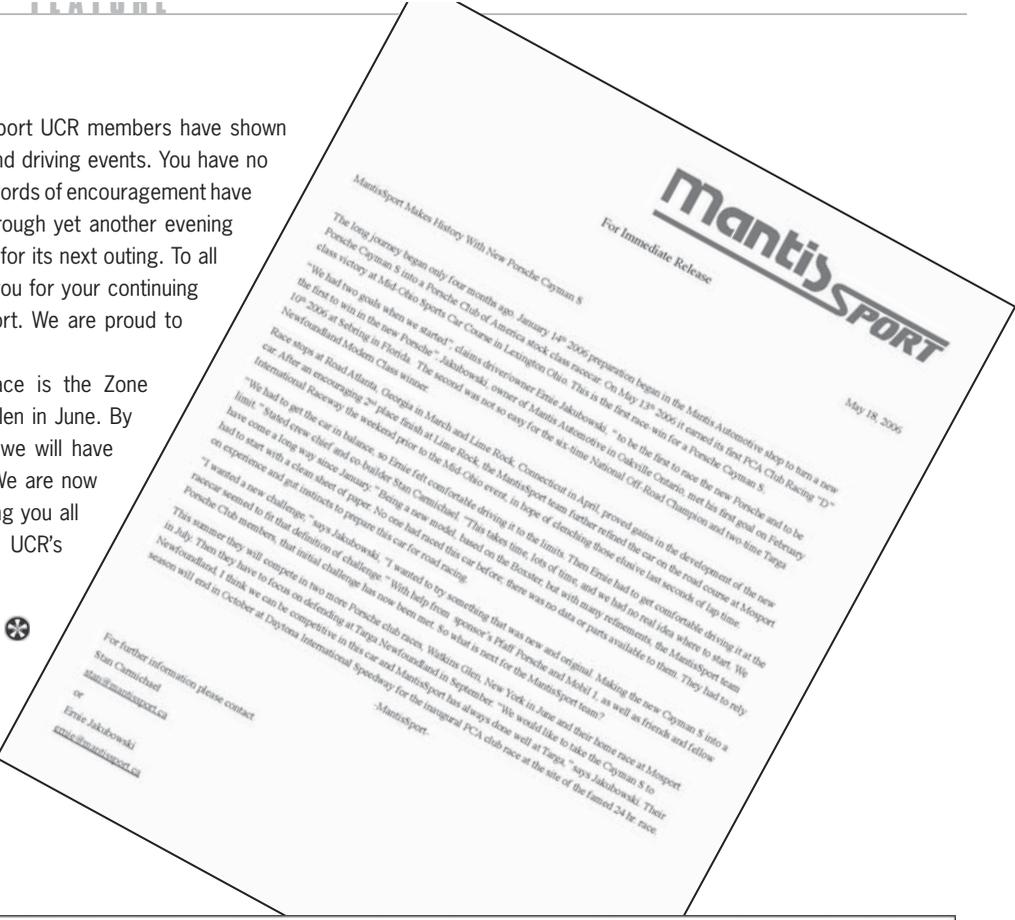
Brion Charters had a disappointing weekend. After a good drive in wet conditions on Saturday, finishing 4th in class and 29th overall Brion was tagged on Sunday in the sprint race causing him to spin off track. He finished 7th in class and 33rd overall. As for the MantisSport/Pfaff Porsche Cayman S it was a storybook weekend. As I mentioned earlier, after qualifying for Saturday's Enduro on wet tires I made the decision to race on dries, this late change made us late for the grid and Ernie started from mid-pack. This handicap didn't last long, as Ernie drove the car into the class lead by the half way mark of the hour-long race. After the second place car pitted, from 8 seconds behind us, Ernie put in 13 minutes of fast laps before pitting. We left the pits with a 20 second lead in "D" class and twelve minutes later celebrated our first victory. On Sunday we qualified fourth for the sprint race, 1st in class. With the rain beginning to fall, Ernie dove inside the first corner to take second place, splitting the top two GT-4 cars. Eventually he had to yield to the third place car but by that time class win #2 was well in hand, so was 3rd overall in the 30 minute race.

This achievement would not have been possible without the efforts of our crew. Richard Burpee, Tom Dueckman, Gunner Jakubowski, Mike Mallais, Scott Gerard and Bill Comat have all made invaluable contributions to this effort. Our sponsors Mobil 1 and Pfaff Porsche have also contributed greatly. Thank you all very much.

Over the last few months both Ernie and I have been inspired >

by the enthusiastic support UCR members have shown us at UCR gatherings and driving events. You have no idea how valuable your words of encouragement have been, as we worked through yet another evening to get the car prepared for its next outing. To all of you, heartfelt thank you for your continuing interest and your support. We are proud to be UCR members.

The next PCA Club Race is the Zone One event at Watkins Glen in June. By the time you read this we will have completed that event. We are now looking forward to seeing you all at Mosport in July for UCR's Club Race.



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