

PCA-CIRcular

Central Indiana Region

May 11, 1973

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President:	Ed Taylor 8034 Cheswick Drive Indianapolis, Indiana 46219 Phone: 898-6507	Vice Pres.:	Dave Turner 4029 Westover Drive Indianapolis, Indiana 46268 Phone: 291-5641
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Activities Chairman:	Mark Smedley 7750 Knue Road Indianapolis, Indiana 46250 Phone: 849-5646	Membership Chairman:	John Dreese 11511 Dona Drive Carmel, Indiana 46032 Phone: 846-6255

SOCIAL EVENT-- MARK DONOHUE
GUEST OF HONOR

WHEN:
MAY 23, 1973
WEDNESDAY EVENING

TIME:
8:30 PM

LOCATION: CHATTAM WALK CLUBHOUSE- 21st and Franklin on
the eastside of Indianapolis.

PRICE-- \$2.00 per person
Ladies are asked to bring their favorite dish. Call either
of the following people to register what you want to bring
so that we don't end up with a lot of the same things.

Dottie Taylor 898-6507
Sharon Smedley 849-5646
Wanda Spall 255-5094

THANK YOUS

Thank you Jim and Judy Darran (see I can spell it correctly) for sponsoring the event
last month. I am sure the people who made a profit appreciated the chance to wheel and
deal.

MARK DONOHUE REFLECTS ON THE HAIRIEST
RACE CAR EVER BUILT

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Associate Editor- Frederick E. Bryson

In 1972, two Porsche-Audi 917-10's driven by Mark Donohue and George Follmer ended the five-year domination of the Can-Am road racing series by the Chevrolet-powered McLaren team. The Porsches are the most awesome machines ever to be developed for road racing, eclipsing the prewar Mercedes and Auto Union Cars. Developing upwards of 900 hp, they are capable of fantastic acceleration and a top speed well over 200 mph.

In this exclusive interview with MACHINE DESIGN, Mark Donohue talks about developing the unique turbo-charged Porsche, compares it to better-known Indianapolis cars, and hints at what can be expected from this year's Can-Am car.

WHAT IS CAN-AM?

MACHINE DESIGN: Most of our readers are more familiar with Indianapolis racing than the Can-Am series. What are some of the differences between Indy machines and the Can-Am cars?

MARK DONOHUE: The Porsche Can-Am car is the most powerful road racing car in the world. (That's unusual when you consider that Porsche for years has had the reputation of building lightweight, small-engined cars.) But Can-Am and Indy cars are quite similar from a performance standpoint. The Can-Am car is roughly 10% bigger in all aspects; it's wider, longer, and it has a little more horsepower than an Indy car. The wheels are a little bit bigger. The Indy machine is a 1,600-lb car with 800 hp, and the Can-Am vehicle is 1,700-lb car with 900 hp. The Indy car is more restricted in its uses of aerodynamic devices than are Can-Am cars, so it doesn't have the lateral capability that the Can-Am vehicles have--nor does it have the versatility of going fast and slow. But at a given speed of, say, 160, performance is very similar. And the handling characteristics are very similar.

Do the two types of cars feel essentially the same when you drive them? Do you get the same kind of "kick" when you accelerate?

No. The Indy car is very precise because it is designed to go fast constantly. The Porsche cannot be made that way because it must also go slow in the turns. It takes a lot more effort to drive because of its tremendous acceleration, braking, and cornering capabilities (reported to be as high as 1.54 g in skid-pad tests). Also, the driver must constantly cope with the turbo-charger. Turbocharger lag is not much of a factor at Indy because cars travel at a more constant speed. You can wait for the boost to take effect. But in road racing, you must be constantly anticipating boost to react to the changing speed conditions.

Then the Can-Am Porsche is much "hairier" to drive?

It takes much more effort to drive Can-Am cars. You're exhausted much quicker. Indy cars are relatively easy to handle from a physical standpoint. In a road racing car, you're doing so many more things-- going around slow turns, fast turns, right, left. Driving a road course with a powerful car requires that you coordinate brakes, steering, clutch, gears, and throttle. At Indianapolis, you have basically just the steering and the throttle.

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What lap speeds could you turn at Indianapolis in the Porsche?

The most competitive car at Indy goes about 195mph, or maybe 200 by May. Given three or four days to adjust the Can-Am Porsche to the Indy track, we should be able to run in the neighborhood of 205, with last year's car. With our 73 Porsche, we could probably do better. But the terminal speed on both Indy and Can-Am cars is about 210 to 215.

What do you mean by "terminal speed?"

Aerodynamic drag goes up with the cube of speed. At some high speed, a big increase in power gives you only a little more top speed. This phenomenon limits the speed of all racing cars to about 215 mph. Since 1968 at Indianapolis, we're still turning the same speed at the end of the straightaways. No matter where we went in the Porsche last year, we never went any faster than about 212. This is an area where we can improve in the future.

DEVELOPING THE PORSCHE:

Did the Porsche people approach you about developing the 917 into a Can-Am car that could beat the McLaren team?

I wish it was as cut and dried as that. The Porsche people feel that they are capable of developing the car on their own. But since 1969, I have wanted to be in on the development of a Can-Am car that would be made the way I would like to see it made. When we had bought Can-Am cars in the past, we had been saddled with getting them at the last minute, having a design that someone else had come up with and that we weren't satisfied with, and faced with the dilemma of not being able to develop it much. When the Porsche thing came up, it looked as if we could have a little bit to do with the development. So we went to Germany and we entered into a sort of "mutual respect pact" with the Porsche engineers. I couldn't walk in there and say, I'm going to take over the development program. You guys sit down and I'm going to tell you how I'm going to do it. I decided to do as much as I possibly could in the program and demonstrate that I have some capability, and they quickly demonstrated that they had a great capability for developing the car. We soon found out that I didn't want all the credit and neither did they. All we wanted to do was win the race. At the point that we decided to go into the Can-Am program, our reputation-- Penske Racing's reputation-- was on the line. Had we failed and not been able to beat the McLarens, I wouldn't be sitting here today. I would be out of racing. However, I'm disappointed that I get all the credit for what Porsche did.

Is the Porsche conveniently laid out and simple to service?

We have simplified it for 1973, but not for the standpoint of working on it so much as to eliminate redundant structures in the chassis. The ability to work on the car is quite good, for either the 72 or 73 models.

What are the so-called "exotic alloys" that are used in the Porsche frame?

The frame is magnesium. We made a big mistake out of that last year because everybody was too inquisitive. We have made frames out of aluminum, but magnesium is much lighter and almost as strong. There is some adverse public opinion about magnesium because of its burning characteristics, but it takes quite a bit to get a magnesium fire started. The car is going to be destroyed long before the magnesium frame could catch fire. One of the disadvantages is that magnesium is difficult to weld. Make one mistake welding the tubes together, and the chassis is junk.

Are the brakes on the Porsche similar to the ones on the McLaren?

We'd like to think they're better, because Porsche has developed a very good lining. And we think we have a slightly better version of the Girling caliper and Lockheed disc.

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What is the coefficient of friction for the lining?

We know what that is from the dynamometer. I think the number is 0.3.

That seems awfully low.

Yes, but linings with higher coefficients of friction do not improve stopping characteristics much during a race because the brakes operate at about 1,200 °F and the linings are outgassing. So, we looked for a compromise that would give us good stopping characteristics and yet would keep the discs alive. Some high-friction linings are quite good, but are very hard on the rotors. It becomes a financial thing because rotors are very expensive. If you had to put new rotors on for every race to gain a 2 or 3% advantage in braking, you would not do that because of the high cost. If we knew of a way to have a better brake we would do it. We have as much air coming to the brakes as we can, we've fitted the biggest calipers and rotors that we can physically put on the car, and yet the braking system is getting more and more marginal. Horsepower is up, drag is down, cornering speed is up, and the car is becoming more shrouded because we are trying to make it aerodynamically better. We could be in serious trouble this year with brakes.

Are your tires similar to the ones used on other Can-Am cars?

We developed a 23in. OD (smaller than standard) front tire for our car last year, and at first it wouldn't work on the McLarens. Eventually they did get it to work on their car, but they felt that we had stabbed them in the back. If I get an opportunity, I'll do it again. Seriously, we were worried about how the tire would affect our car, not theirs.

You were reported to have about 900 hp in 1972.

That's wrong. We started out with about 800 on the dyno, and ended up with about 900. But once we got that engine in the car, I don't think we had as much horsepower as people were saying. We had horsepower advantage over the McLarens, but I don't think it was anything like what people thought it was.

Can the Porsche suspension be quickly adjusted before or during a race?

Very easily.

THIS ARTICLE WILL BE CONTINUED IN THE NEXT ISSUE

Let's all turn out for the Event with
MARK DONOHUE
and show him how much interest there
is in this region.