

der Bayerische

NATIONAL CAPITAL CHAPTER BMW CAR CLUB OF AMERICA

MAY/JUNE 1993

David Hobbs returns to NCC!





BMW Car Club
of America



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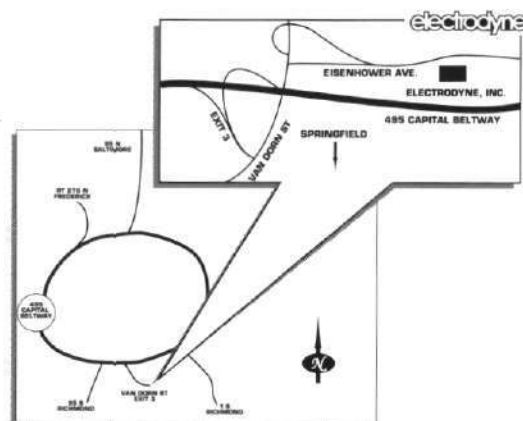
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4750 Eisenhower Ave
Alexandria, Virginia (703) 823-0202

Commercial & Private Vendors-
Doug Crowther (703) 450-9175

General Questions-

Kevin Cowley (301) 953-2902

No Admission Fee • \$10.00 Vendor Fee



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Vol. 23 / Number 3



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David Hobbs is Coming!
 See page 3.

Photo by David Sossamon

Cover

David Hobb's McLaren 320i turbo.
 Photo by Mike Early

Contents

<i>President's Message.....</i>	<i>2</i>
<i>Calendar & Coming Events</i>	<i>3-9</i>
<i>Postman's Autocross</i>	<i>10</i>
<i>As the Wrench Turns.....</i>	<i>14</i>
<i>Drivers School Application</i>	<i>18</i>
<i>Treasurer's Report</i>	<i>23</i>
<i>Road Rallying: Part C</i>	<i>24</i>
<i>Competition Corner Calendar</i>	<i>28</i>
<i>The Next 30,000 Miles</i>	<i>29</i>
<i>Competition Corner.....</i>	<i>35</i>
<i>Part/Car Sales.....</i>	<i>36</i>



President's Message

John "Jack"
Kenworthy

SPRING IS HERE!! After spending the week-end at Summit Point in the snow, I am ready for some warm weather! If you hear me complain this summer about hot weather, please hit me. I am sick of cold weather!

The Frostbite drivers school went well due to the hard work of our new drivers school coordinator. With a little help of his friends, Al Zavala proved that he will continue our drivers school with the success that we have become accustomed to. On Saturday afternoon, a recent graduate of the Skip Barber's School commented that he felt our school was better run and that he actually learned more! Correct me if I'm wrong, but Skip Barber gets approximately \$1,500 for his school. For a \$1,400 savings, I will use my own car. A special round of applause to Ed Nazarko for his professional class room presentation, David Roach for doing registration, Paulette Leeper for MAKING Saturday's lunch and arranging Sunday's lunch, and to all of the CORNER WORKERS who braved the cold weather! We couldn't do it without everyone helping. GREAT JOB AL!

Please take the time to look at the calendar. We have once again planned a wide variety of events. We have paid our dues to the weathermeister with two events cancelled due to bad weather. The rest of our events will have beautiful weather. We have our regularly scheduled events with a few new additions. I have worked out having David Hobbs speak for us. Chris Leeper has arranged the Flying Circus Aerodrome. This should give everyone a wide spectrum to choose from. Some of us will attend all of them, and I want to encourage you to do the same. Most are free with the exception of the Concours and Drivers School.

As many know, Sarah and I are avid sports car racing fans. We have been fortunate enough to attend races at most of the circuits along the east coast. Typically, sports car racing fans are very similar. You see enthusiast cars in the parking area, many times in a corral. Most wear nice casual clothing with the occasional driver showing off his favorite marque by wearing a shirt claiming the same. On a rare occasion, you may see Ayrton Senna displayed on the back of a lovely female race fan. (If Sarah is there!) Nikons are in abundance, as are quality bottles of beer. NOT AT A NASCAR!!! We ventured out of our neighborhood in March for the Richmond 400. Is it 400 kilometers? NOT! 400 laps? Maybe. I think it was 400 miles, but the track isn't exactly 1 mile long, so what about

the extra distance covered? On Sunday morning we headed south on I-95. Immediately the Dale Earnhardt stickers appeared in everyone's back window. (Pickup trucks don't have rear side windows) Upon arrival at the fair grounds, I asked "where is the BMW CCA corral?". The attendant thought maybe they had corrals at the state fair, but he wasn't sure. "Park over dar nex to dat yelar truck" I looked around for someone else in a furin car, but we were all alone. No Detroit jokes today. After we grilled marinated pork tenderloin for lunch, we headed inside for our day of "racin". Good seats near the start finish line. Nice sunny day. Warm enough that a sweat shirt will surface. Not bad. St. Louis and Milwaukee appear to be making good money today. The local police station furnishes the singer for the National Anthem. "Gentlemen start your engines." VROOOM. Damn those V-8's are loud! After the first pit stop, Sarah replies that she bets they pull in for aspirin. "They have to be dizzy." Time for my first pit stop. After a successful pit stop, I head towards the grand stand. A GM marque fan, appearing to have made his contribution to the well being of our friends in Milwaukee, comes towards me, his right arm waving above his head screaming, "GO NUMBER 3, HELL YEA, GO NUMBER 3, HELL YEA, MY MAN, NUMBER 3." I almost forgot, as I snickered to myself, I wore my M3 hat today. I think I'll stay at the IMSA and SCCA races in the future!

As always, please support our advertisers and event sponsors. We could not survive without them. Their generosity allows us to continue putting on such great events.

HAVE FUN!!! ☺

Reminder

The National Capital Chapter does not furnish alcohol at our events. We will however allow B.Y.O.B. at all events. Please understand the legal ramifications directed at the board if something was to happen. I regret that the current legal system requires us to make this decision.

John Kenworthy

1993 CALENDAR

APRIL

Sat/Sun 24-25.....Spring Tour

MAY

Sun 2.....Deutsche Marque

Concours

Sat 8.....Radial Tire/Maifest Dinner

Sat/Sun 8-9.....Maifest Driver School

Thu 13.....Heishman BMW presents
David Hobbs

Sun 16.....Jefferson 500/Pegasus
Motors Vintage Corral

Fri 28.....*der Bayerische* deadline
for July/August Issue

JUNE

Sun 6.....Landover Auto-X

Sun 13.....Flying Circus Aerodrome

Sun 20.....Electrodyn Swap Meet/
Gymkhana

JULY

Mon 5.....Firecracker Drivers
School

Sun 11.....MARRS Corral

Sat 17.....Mid-Winter Tour

Sun 18.....Heatwave Autocross

Sun 25.....Championship Auto-X

Fri 30.....*der Bayerische* Deadline
for Sept/Oct Issue

AUGUST

Sat 7.....Annual Crab Feast

Mon 16.....Hot Shoe Drivers School

Mon/Fri 23-27.....Oktoberfest (California)

SEPTEMBER

Sat 11.....Orioles Outing

Sun 19.....Bavarian Inn-Oktoberfest

Mon 24.....*der Bayerische* Deadline
for Nov/Dec Issue

Sat 25.....Lothar Tech Session

OCTOBER

Sun 3.....Vintage Race Corral

Mon 11.....Fall Drivers School

MAIFEST DRIVERS SCHOOLS

Summit Point Raceway

Sat/Sun, 8-9 May

Summit Point, West Virginia

At last! Maifest in May! Two days of drivers schools plus the Yokohama/Radial Tire Maifest Dinner on Saturday night. Again this year, the Courthouse Café will cater an *al fresco* dinner at the track. Al Zavala promises clear skies and 72 degrees.

HEISHMAN BMW PRESENTS DAVID HOBBS

Thursday, 13 MAY

TYSON'S CORNER MARRIOTT

Cocktail Hour (Cash Bar) 6-7:00pm

David Hobbs LIVE 7-9:00pm

Cost: FREE

Just when you thought it was safe to go out again! Once again we are hosting an evening with David Hobbs. If you were fortunate to have attended this event two years ago, you can attest that David could have made a lot more money as a comedian. Thanks to the generous support from HEISHMAN BMW, we are able to have David come out to entertain us before he heads up to the world famous circuit at Summit Point.

This year's Jefferson 500 will include David driving Brian Redmon's Lola. I was disappointed that he won't be driving one of the BMWs. This evening's event will help kick off the beautiful vintage weekend. Please see the article in this issue for details on the vintage race.

If you have never heard of David Hobbs, he is one of the most successful BMW racers of all time. He is the only foreign race car driver to ever lead a lap of a NASCAR race. You have seen him on ESPN, and ABC as the commentator for many different races. He is one of the best race car drivers of all time. His speaking and joke telling is ten times better than his driving. DON'T MISS THIS EVENING!!!!

The Tyson's Corner Marriott is located on Route 7 at I-495. Parking is available in the rear of the hotel via the parking garage.

Thanks once again to HEISHMAN BMW for their generous support. Please keep them in mind the next time you are purchasing a BMW or parts for your Bavarian beauty.

continued on next page

Coming Events

continued

IT'S... THE FLYING CIRCUS AIRSHOW

**Sunday, 13 June
Bealeton, Virginia
Departure from Shoney's In
Manassas, VA, 11:30am**

At the Presidents Tour dinner hosted by the Blue Ridge Chapter in Charlottesville's Blue Ridge Restaurant last April, Jack and Sarah Kenworthy were overheard being severely chided by one of our own chapter members. Her complaint: our chapter never ever organizes any "non-driving events," i.e. suitable for those who get no thrill from thrashing their Bimmers around on race tracks or autocross circuits or rally roads, or from watching anyone else doing any of the above. Sarah reminded our complainant about the crab feast, Orioles outing, Blob's Park Dinner, spring tour and those other non-driving events put on by our Chapter. For reasons unknown, Sarah's response wasn't satisfactory to our unhappy camper. She wanted more non-driving events on our calendar. Sarah agreed it would be great to have more, and suggested that our disgruntled colleague plan and organize something, noting that all of the Chapter's events are handled by a mere handful of dedicated (and overworked) volunteers who would welcome her assistance in providing a broader variety of events for our membership. Not surprisingly, our dissatisfied customer has not made any offers.

And now for something completely different...

So, dear friends, into the breach! This year we've come up with another non-driving event which we hope will appeal to her and to many others in our Chapter who have not yet been enticed into joining in on the fun. Billed as "America's ONLY Barnstorming Airshow & Museum," the Flying Circus Airshow at Bealeton, Virginia is reported to be a real treat for folks of all ages. Special arrangements have been made with the organizer of the Flying Circus Airshow (local radio personality/airborne traffic reporter Walt Starling!) for the National Capital Chapter for the BMDooDoo Car Club of America to host a gathering of the tribes to socialize and marvel at feats of daring-do in the skies above the nearby rolling Virginia countryside. We will have our own dedicated parking area and picnic site. Walt has even promised to bill the June 13th show officially as "BMW CCA Day;" in fact, he's REALLY REALLY

REALLY excited about our scheduling this event.

The airshow is a 1 1/2-hour, 15-act extravaganza climaxing in a wing walk! For the real thrill seekers among us, plane rides are available before and after the show. The air fares are: \$17 for a closed cockpit ride, \$30 to ride in an open cockpit plane (e.g. a biplane) and \$50 to experience an aerobatic ride complete with loop-de-loops, barrel rolls and inverted level flying! After the show, the airplanes are fully accessible for viewing "up close and personal." There's a snack bar at the facility—hot dogs, beef barbecue, ice cream, soft drinks and the like - nothing fancy. Or you can bring your own picnic makings and enjoy an old-fashion day at the flying circus. Alcoholic beverages ARE allowed, but Walt has asked that we be low-key about it (not rowdy) because it is a family event and we won't be the only ones in attendance. It's BYOB, however. Walt says the whole atmosphere of the Flying Circus is extremely informal and laid-back, making the fun aspect easy. He'll be there as a participant, and he says he'll stop by our assigned picnic site to visit with us awhile. He strikes us as a very affable character, and he's obviously got to be downright wacko to be in a flying circus air show every Sunday from May thru October! Chatting with him should be a kick. Okay, okay...so he's not Brian Redman or David Hobbs, but what can I say? On the other hand, he won't drink as much of our booze either! Probably...maybe...Bring your own lawn chairs!!!

The event will start out with a scenic tour along the back roads (no dirt, we promise) from the Manassas Shoney's to the airport. If you'd care to caravan along with us on this scenic tour, plan on being at the Manassas Shoney's in time for a 11:30 a.m. departure. If you want to drive direct without the group, easy directions will be available at the Shoney's in Manassas at 11:30. You can have breakfast there if you'd like (I'm sure several of us will do that).

Directions from Capital Beltway: Take Rt. I-66 West to Manassas (about 20 miles); take Exit 47 (Route 234 South); go to the 2nd traffic light (you'll pass Shoney's on your left) and make a U-turn to get to Shoney's (now on your right).

If you'd prefer to travel there solo and hook up with us at the airshow, directions from the Capital Beltway are: Take Rt. I-66 West to Rt. 29 South; take Rt. 29 South past Warrenton, VA. (there's a Rt. 29 By-pass at Warrenton

which will save you time), to Rt. 17 South, and turn left onto Rt. 17 South. Beyond the village of Bealeton, turn left onto Rt. 644 and follow it to the Flying Circus. Proceed thru the gate and follow the signs to the BMW CCA parking area.

Gates open at 11:00 a.m. Air show starts at 2:30 p.m. Tickets are \$6.00 for adults, \$4.00 for children, payable at the gate.

Rain date for this event is Sunday, 20 June per Walt Starling. Hence, if the show gets rained out on 13 June, you'll have 2 events to choose from on the 20th - the Electrodyne Swap Meet/Gymkhana (a quasi "driving event") and the Flying Circus Airshow (a distinctly "non-driving event"); call the Hotline for meeting place/time & caravanning information for the rain date.

We are inviting the Blue Ridge, Shockoe (Richmond) and Tidewater Chapters to join us, and we hope to see a large turn-out from those Chapters as well as from our own.

So come on out and join us!! Let's see some new faces at this event. Load up the Bimmer

(or whatever you're driving these days) with the family and/or friend(s) and enjoy a relaxing and fun filled day in the sun at the Flying Circus Airshow. Walt says he'd love to see 100 or more Bimmers proudly displayed on the grass parking area assigned to us. Let's do all we can to fulfill his wish. Is it possible we'll see a BMW-powered plane there? Don't know, but maybe...

For further information call Chris Leeper at 703/455.3041.

(Now...I would like to buy a fish license please. For my pet fish Eric. He is a Halibut. I chose him out of thousands. I didn't like the others, they were all too flat...)

continued on page 7

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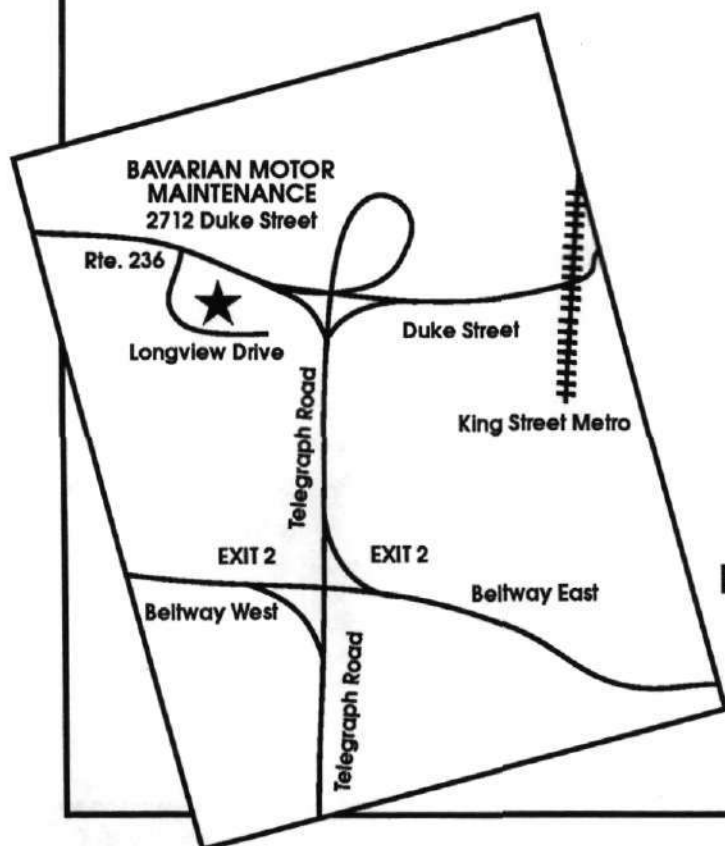


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continued from page 5

ELECTRODYNE SWAP MEET/ TECH SESSION

Sunday, 20 June
Electrodyn/Racing Dynamics
4750 Eisenhower Ave., Alexandria, Va,
9:00am-4:00pm

Electrodyn is hosting the 2nd annual Swap Meet/tech session. Last year's swap meet was such a big success the club plans on holding this event each year. There will be representatives from many large companies including Racing Dynamics, Bilstein, Yokohama, Redline Lubricants, Kamei and Zymöl. Tech sessions will be held during the day. Many of the local BMW dealer parts departments will be there to sell O.E.M. parts at discounted prices. Private vendors will be set up to sell anything and everything BMW related. A "Car for Sale" lot will be set up for people interested in buying used BMWs. Last year the event had lots of interesting BMWs for sale including a 2002tii touring, 323i Baur Convertible and other newer models. To keep you interested all day, there will be a People's Choice Concours and our first ever Gymkhana. Gymkhana is a popular event - non intimidating and requiring a lot of teamwork. The driver is given instructions by his partner to negotiate an obstacle course. Admission is FREE, with a \$10 charge for anyone who is selling. This is the perfect opportunity to find that hard to find part or get rid of your old parts. We are expecting numerous BMW race cars to be on display. Electrodyn will be offering a special sale for this event only. Food and beverages will be on sale. If you have any questions or want to register to sell parts please call the appropriate contact.

PRIVATE/COMMERCIAL VENDORS:

Doug Crowther 703/450.9175

GENERAL QUESTIONS:

Kevin Cowley 301/953.2902

MID-WINTER CATHARSIS TOUR a.k.a. Stouts (sic) Brewery Tour Saturday, 17 July Time: 10 a.m.

Well, it's mid-winter in Buenos Aires...

Our mid-winter tour didn't go off as planned, a victim of snow, of all things, so we've rescheduled it for the middle of July. Expect ice-free roads, unless someone dumps the remains of his Big Gulp out the window, and top-open/top-down motoring with the resident club driving junkies as we venture into Amish country. Our destination still is Stoudt's Black Angus Restaurant and Stoudt's Brewery, where we'll have a tour of this award-winning operation. And, the outdoor beer garden ought to be open, too! Contact Dwight Derr at 410/889.9578 evenings and sign up. Reservations are on a first-come, first-served basis.

Directions: From D.C. take I-95 north to I-695 (Balt. Beltway) north towards Towson to Exit 23N (Falls Rd.) Right at first light (Joppa Rd.) Go approximately 200ft turn left onto Station Drive. And look for the BMWs! (P.S. Bring your helmet for Malibu Gran Prix on Sunday.)

WesBen

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Coming Events

continued

HEAT WAVE AUTOCROSS

Sunday, July 18

Place: Fort Meade (N.S.A. lot)

Registration and Tech: 9:00am

Morning Heat: 10:00am

Lunch: 12:00pm

Afternoon Heat: 1:00pm

Cost: \$10.00

If you enjoy driving your car but would like to know its handling limits, an autocross is a great way to learn or if you're planning on attending a drivers school this year it would be a way of practicing your drivers skill.

If you have never done an autocross we will have experienced autocrossers on hand during the event to give pointers. At the beginning of each event we will have an experienced driver walk though the course with you.

In order to prepare your car for this event you should:

- remove all objects from your car;
- make sure your brakes & steering are in good working order;

— inflate tires to 40 lbs. in front, 35 lbs. in rear (most BMWs).

If you have a helmet bring it; if not we will have loaners.

Directions: Balt./Wash. Pkwy. to 32(E), follow signs to lot.

For additional information call David Lassalle 301/317.1461 eves.

LATE BREAKING NEWS!!!!

ESPN has just announced that David Hobbs will not be covering the 1993 Formula 1 season. Those who watched the South African race know that Derick Daly has been selected to replace David Hobbs. I don't know about you, but I feel that Derick Daly is a step down from David Hobbs. Formula 1 needs all the help that it can get! David's knowledge of the circuits and his wit help make up for the lack-luster racing. Please take time to write if you feel the same way! Write to: Steve Bornstein (President ESPN) 605 3rd Ave. New York, N.Y. 10158.

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ANNUAL CRAB FEAST AND CONCOURS

Saturday, August 7

1:00pm till Dusk

Last year it was cold and rainy and they still came. Can you imagine with 85 degree weather and bright sun how crowded it will be this year. Yes folks, it is time again for summer (well pretty near time) and we will all be ready for some tasty blue crabs. This year we will be taking paid reservations only. So please mark your calendar and send me a check for \$12.50 per person and we will save you a spot at the table, a mallet or two and plenty of cups (remember no beer). Also, there will be an informal peoples choice concours.

Send \$ to: Michael Early (see mailing info on officers page).

Directions: 95 South or North (depending on which direction you are coming from) to 195 towards BWI take your 1st exit off of 195 onto route 1 South, follow sign off of exit ramp into the park.

O RIOLE OUTING - O'S VS. OAKLAND

Saturday, 11 September

Time: 7:30pm

Get your popcorn, hotdogs, cold... This event sells out every year so please get your tickets in advance by sending me \$7 per ticket and a self addressed stamped envelope. The seats aren't on 1st base but you're in the park and the view is great. 1ST COME, 1ST SERVE.

Send \$ to: Michael Early (see mailing info on officers page). ☺



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Postmans Autocross

David Lasalle

What's the first thing to ask for an autocross held in the first week in March? A sunny warm Sunday and boy did we get our wish. The morning event started at 10:15 with 30 drivers. What was interesting about the morning event was that 25 out of 30 drivers made their best time in the second and third run. Therefore they learned a lot in their practice and first run for some of the participants it was their first autocross. In the afternoon we had 29 drivers. Six of the drivers did not run on the morning and the rest did the morning and the afternoon. All drivers got one practice run and three timed runs. All cars were put in three classes Modified BMW, Stock BMW, and Brand X.

I would like to thank the crew for helping (Jim Ruos, Dwight Derr, Al Zavala, Charles Denton and Gary Toyama) and of course a special thanks to Trey Davis from Merchants Tire. We would not be able to put on such a great event without them.

The Following times shows each driver their morning and afternoon best time.

Morning Event	Stock Class	Time (Sec.)
David Lassalle	325is	45.38
Gary Toyama	325is	48.82
Chris Holm	535	51.03
Houng Laqui	M3	52.00
Robin Laqui	M3	52.76
Mike Trepton	325es	55.30
Mike Rogers	2002	55.37
Reggie Trujillo	2002	56.61
Jim Wood	535	58.77
Andrew Loth	2002	59.63

Afternoon Event	Stock Class	Time (Sec.)
David Lassalle	325is	56.23
Gary Toyama	325is	58.92
Trey Davis	325is	1.02.17
Chris Holm	535	1.02.81
Robin Haqui	M3	1.04.97
Mike Rogers	2002	1.05.49
Houng Laqui	M3	1.06.16+1
Reggie Trujillo	2002	1.09.13+1
Bert Silker	2002	1.12.06
Andrew Loth	2002	1.14.34

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Morning Event	Modified Class	Time (Sec.)	Driver	Brank X	Time (sec)
Woody Hair	325is	47.88	Charles Broning	Lotus	48.21
Brian Hair	325is	48.20	Rod Grandy	Fiero	49.80
Dwight Derr	633	48.77	Jim Ruos	240sx	49.93+1
John Harge	M5	50.66	Gary Linn	Accord	51.80
Fernando Puig	2002	52.48	Steve Kaufman	MR2	52.78
Bob Hausmann	533	53.18	George Baird	Saab	53.03
Gonzalo Puig	2002	53.81	Virgil Acosta	Scirocco	53.15
David Appel	528i	53.47+1	Roger Bass	Jaguar	55.26
Mike Whitely	318is	55.44	Brian Barrows	Scirocco	56.28
Scott Low	2002	O.C.			
Ken Bhan	530i	O.C.			
Afternoon Event	Modified Class	Time (Sec.)	Driver	Brank X	Time (sec)
Dwight Derr	633	58.51	Charles Broning	Lotus	57.45
John Harge	M5	59.49	Al Zavala	Colt T	57.55
Charles Denton	2002	1.01.58	Rob Grandy	Fiero	59.56
Fernando Puig	2002	1.02.98	Jim Ruos	240sx	1.01.46
Ken Bhan	530i	1.05.91	Adouph Rose	Starlet	1.01.65
Peter Suah	2002	1.06.70	Gary Linn	Accord	1.02.42
Gonzalo Puig	2002	1.05.94+1	Steve Kaufman	MR2	1.02.81
Bob Hausmann	533	O.C.	George Baird	Corvette	1.02.83
David Appel	528i	O.C.	Virgil Acosta	Scirocco	1.03.80
			Ed Bernard	Sentra	1.05.91
			Brian Barrows	Scirocco	1.06.71

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Auto Elegance Zymöl Tech Session at BMW of Fairfax

Jenny Narzarko

Well the day certainly started out cold enough, down in the thirties, I believe, and I wondered how in the world we would ever be able to wax a car on such a cold day. Not to worry though, as BMW of Fairfax was kind enough to allow us workspace in their heated shop area.

Winston, of Auto Elegance, the local Zymöl Wax Distributor, put on his second annual tech session for those of us who love clean shiny cars. He was careful to explain the multi-step process for cleaning the car surfaces of dirt and accumulated wax, how to treat the surfaces, how to apply the multitude of waxes, and how to buff them. Zymöl makes great products for your leather seats, the dashboard, wheels and all the rubber stripping, as well as many different kinds of wax for different colors and kinds of cars. For instance, if you have a Bugatti, Zymöl has a special wax just for it. Winston was also good enough to pass around the little jars of wax for sniffing. (If you've never taken a good whiff of Zymöl wax, you are missing out on one of a car buff's greater pleasures.)

A car was pulled in for demonstration purposes (mine!), which turned out to be a mixed blessing. While the owner had planned to wash and wax the car soon (read eventually, when it warms up), she thought this would be a great way to spread the work and everyone would get some hands on experience. Unfortunately it was not to be, as everyone stood in awe of Winston's prowess at waxing, and I got a well waxed trunk lid, one shiny wheel, a waxed windshield and wipers. Just guess what I spent Sunday doing...

Unfortunately the interior didn't get touched, but believe me the leather cleaner and dashboard restorer are great. Make the car smell good too. I've used Zymöl products for a few years, and I think they give a car an excellent shine. And they're user friendly. Contact Winston (see ad elsewhere) for supplies or your local BMW dealer. (Just remember, the wax is for the car, not your nose. And watch out for bees in the summer!). ☺

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*Photo by
Jenny Nazarko*

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As the Wrench Turns... a Continuing Saga of a BMW Addict

Terry Luxford

A year or so ago we covered a series of modifications to your favorite platform, the BMW. We did it backwards from the usual approach because we could show a bigger improvement by attacking the handling end of the car equation than the motive end. By improvement, we are not talking about the performance at the track alone but are really aiming at improving your chances of survival in the beltway bashes and street scenes. A couple of you built the suspension of this evolutionary moment and were amazed at the level of control and compliance available. Unfortunately the valving for the front shock inserts that is required to support the front spring rates produces too much heat for the survival of most shocks. The immediate solution for the racer and the streeter has been to return to a high pressure gas over hydraulic insert with its attendant loss of compliance. We are talking to a number of shock manufacturers and hope to have a solution to report to you within your lifetime.

In the meantime, we will go to the motive end of the equation and address the engine modifica-

tions in several stages of practicality with an eye for those that have some hope of being legal as well as useful. I must confess to rushing that portion of the article series and not having the opportunity of proofreading the material before it went to print. There were some minor errors in the tables/footnotes and the presentation was pretty faulty. Please accept my apologies and my intent to make this iteration far better. So...

ENGINES AND MODIFICATIONS

Without going into ancient history, the fundamentals are cams, carburation, compression ratio, and exhaust systems. We use the term system because the engine must be thought out in terms of integrating the components of a system in order to achieve your goals for an engine that operates satisfactorily for the conditions that you have selected. If your goals are to minimize emissions, then you may be served with little or no boost in compression ratio, the stock cam, the stock fuel injection or a Weber carburetor, and the stock exhaust or an after-market catalytic converter. In small contrast,

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we have upgraded the 1.8 liter 320i engine to 2 liters and used Stahl 1.5" headers; 9.5:1 compression ratio pistons; the early 320i warmup regulator, auxiliary air valve, and fuel distributor; the stock cam or a 300-degree reground cam; and an aftermarket Walker catalytic converter. This set-up makes a very tractable, reliable, and economical powerplant. Since leaded fuels haven't been available in this area for many years it isn't likely that you could hurt one of these modern three-way catalysts. In this way you can have your power and your conscience too. Enough, its time to go into the functions of the components.

CAMSHAFT

The cam is the brains of the outfit. The characteristics of lift, lobe center, duration and overlap are going to determine the basic operating range of the engine. If your engine is to remain fuel injected or will use downdraft carburation then you should stick to cams with lobe centers no more narrow than 110-degrees. With 108- or 105-degree lobe centers, you would not be able to get a reliable idle under 1.2k or

1.8k rpm. If you are going to build your engine with side draft carburation or Tii-type fuel injection then lobe centers of 108 or 105 degrees will work fine for the street. The all out race cams of 100 degree lobe centers produce power bands that are generally too stratospheric for reliable street work. We have a customer that wound up with a Schrick 316-degree cam in his Tii with a modified injection pump. It took him so long to sort out the variables [we were called in at the tail end of the effort] that the engine had worn itself out in the process. Still, it was an awesome engine.

Reground cams deserve some special attention here. By increasing the lift and duration a bit and not damaging the lobe centers, you can get quite a bit more out of your engine at a very reasonable cost. The downside is that while the operating band of the engine isn't changed much, the ability to sustain an occasional over-rev is compromised. Because the grinding away of the base circle to increase the lift has hurt the geometry of the cam follower [rocker arm] it is more likely to break when things get busy. If you would consider a rev-limiter then

continued on next page

As the Wrench Turns...

Terry is one of the owners of Quality Car Services, Ltd of Rockville, MD and when not found there will usually be found at Summit Point helping someone. Quality Car Services is top-rated by Checkbook Magazine and has hosted many a tech session in the past.

Terry will answer your technical or bench-racing questions in the evenings from 8pm 'til 10pm. In cases of emergency, you can reach him at Quality Car Services, 301/340.8269 from 9am 'til 5pm, Monday through Friday.

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As the Wrench Turns...

continued

this \$100-150 option looks pretty good next to a \$600-900 after market cam.

If your options list includes side draft carbs then you should not consider the regrinds because it is too easy to hurt the valve train with the larger carbs. About the most aggressive street cam is the Schrick 304 with the Factory 300 just behind. As I remember, the Schrick 304 had lobe centers of 105 degrees and the Factory 300 was on 108 degree lobe centers. On the dyno, there was only a 200 rpm difference in the torque peaks and a 500 rpm difference in the horsepower peaks. The prices are almost identical, too, so there is little to recommend one over the other. All other things being equal, the Schrick will produce roughly 10 more horses than the Factory unit so the Schrick gets my nod.

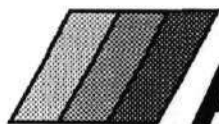
We tend to ignore the stock cam in our search for power but it is a pretty good unit and there are lots of combinations of intake, exhaust, and carburation systems that will work well. If your goals are focused on smooth idle, mileage, and modest cruise speeds then your best bet would be the stock unit.

CARBURATION & FUEL INJECTION

There aren't very many stock carburetors about any more so we won't spend time with them. Brand new they were good for about 40k miles before they began to develop idiosyncracies. The Solex started life very well matched to the needs of the engine and was never made too unhappy by small modifications as long as the cam lobe centers were not too heavily leaned upon. The metering jets were very fine and susceptible to dirt and water in the extreme and the slow development of vacuum leaks with age were enough to condemn the pieces. Enter the Weber conversions.

Although we have seen lots of different Weber carbs on BMWs, the DGV-series has been the most popular. The longevity and utility of this carb series has been a godsend to the BMW owner. It is a little small for the BMW engine but is easily tunable over modest ranges. It is also the spec carb for the SCCA ITB series race cars. For the carbureted 6-cylinder engines, the carb was a thorn bush to set up and keep a stable idle and emissions all at the same time. For a while it seemed like everyone had a kit for

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the conversion but no one modified the carb to fit the application. Drilling a hole in the primary butterfly to keep the idle speed throttle setting out of the intermediate ports and cutting down on the choke butterfly to decrease the choking action were too advanced for the kit suppliers of the day. In most cases, after you installed the Weber and the set up vagaries drove you nuts, you wound up having someone take the carb off and go through these adjustments as well as checking the rest of the specs. Even with these "problems" the DGV-series carbs have been outstandingly reliable—we have used floats and auxiliary venturis from carbs with over 200k street miles on them on ITB racers without qualm.

Another downdraft carb that deserves some mention is the 500cfm Holley 2-bbl [4412]. This carb originally sat on top of a 390 cu. in. Ford engine and never saw the high side of 3000rpm. IMSA decided that it would be an acceptable upgrade unit for the RS sedans in the late 70s. It is a huge carb by comparison to the stock and the Weber units and with a little work would turn out lots of horsepower at three

times the rpm band of the old Ford engine—of course the BMW engine was just 1/3 the displacement of the Ford engine. The idle emissions were terrible so if you are going to try it plan on some serious work on this circuit.

Side draft carbs aren't fussy at all. They are quite stable when carefully set up and will work with any cam. Because of the huge accelerator pump circuit capability required to cover the large throttle openings available, your mileage will be roughly 2mpg lower than a downdraft carb matched to the engine. Side drafts are expensive and if you are going to "tune" them plan on buying lots of jets—and one for each cylinder.

Do not buy any side draft smaller than 45mm. Let me put that in a different way—never buy any side draft smaller than 45mm. "But I got such a good deal on the 40mm carbs that I couldn't resist. What can you do with them?" Put them on a 1600cc Datsun. They are too small for the 2 liter BMW intake passages. Somewhere between 5500 and 6000 rpm the 40mm side drafts will begin to develop enough

continued on page 19

As the Wrench Turns...

continued

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vacuum in the body of the instrument to pull fuel out of the accelerator pump circuit and the unit's ability to meter fuel properly will go down the drain. Followed immediately by your mileage and eventually by your ring seal. By way of comparison, Bob Gammache's GT3 2002 uses 55mm Webers on a basically stock-diameter intake tract and these are barely adequate for the power band in which this engine operates. Use 45 or 47mm carbs for any street engine with the internal jetting varying with the camshaft and the compression ratio selected - more detail on that later.

Fuel injection is not terribly fussy as long as you remember to keep the camshaft lobe centers greater than 110 degrees. It is the same story as that of the down draft carbs. There won't be enough vacuum at idle to actuate the fuel metering system to deliver the fuel unless you are using the mechanical fuel injection system from the Tii. There was an interesting article on adapting the 318i electronic fuel injection system to the 2liter engine in one of the club magazines but to adapt this system to a modified engine is to invite some complications

solvable to a programmer but not to the average builder. There are also some VERY interesting programmable fuel injection and ignition systems available at some not TOO unreasonable costs.

COMPRESSION RATIO

Plan on raising the compression ratio to as close to 10:1 as you can get. Compression ratios of 9:1 are a practical minimum. With an aluminum cylinder head there is no reason to accept the lowered efficiency of the USA compression ratios; i.e., roughly 8:1 in the earlier 4- and 6-cylinder engines. The higher the compression-ratio, the higher the efficiency of the engine; and, in contradiction to the observations of The Design and Tuning of Competition Engines, the BMW engine will make perfectly reliable horsepower in street form, on street fuel, and in everyday usage at compression ratios of 11:1. This engine will have side-draft carburetors and a camshaft of 105 to 108-degree lobe centers. It will also be sort of fussy about the carburetor set-up and

continued on next page

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timing setting. So raise the compression ratio to improve the efficiency of the power plant and you will find it easier to meet the emissions requirements.

If you are intending to change camshafts and carburetion systems for more power, you **MUST** raise the compression ratio to improve the engine efficiency at the bottom and the top of the power band. For these higher-output engines, the compression ratio should be as close to 10:1 as possible but generally no higher than 11:1 and never less than 9:1.

EXHAUST SYSTEMS

For stock or near-stock engines the stock exhaust system will prove perfectly adequate. Items like thermal reactors won't do a thing for performance and represent a real risk to the lifespan of the cylinder head. On the other hand, an adequately-sized catalytic converter won't hurt at all.

As the engines get more powerful, the requirement of the tube sizing in the exhaust system begins to go up. This requirement only appears on the top end of the power band and is gener-

ally not worth going after, especially for street work. Also, if you make the system too big, it will hurt the bottom-end response. In the big sixes, there is precious little room for much improvement but there are some interesting Euro systems with proper sizing but the pricing is pretty close to what a custom bent system would cost.

OTHER SYSTEM REQUIREMENTS

The oiling system should be your next consideration, especially if you have improved your suspension. Raise the system pressure by shimming the oil pump pressure relief valve piston. Use a Holley main jet between the spring and the piston to pick up about 10psi. The normal rule of thumb in oil systems is to use 10psi for every 1000rpm that the engine is expected to turn. It isn't a hard and fast rule but if you are going to run your engine hard plan on it or your jewel won't live.

If your car has a decent suspension you are going to have to baffle the sump to keep the oil around the pump pickup under cornering conditions. The sixes have an adequate system for

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street cars but the early fours do not. Ask anyone that builds IT engines and they will say it is necessary to survival on the track. It won't buy you anything on the street but when you go to the driver's schools it will go a long way in ensuring the longevity of what you have spent so much of your hard-earned upon.

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Oil changes, de-salinization of your chassis, checking the condition of the cooling system, bleeding the hydraulics, and cleaning the car inside and out. By the time this makes the streets we may have been reacquainted with the sun and it might be possible to open a window without freezing your ears.

Pay particular attention to your tires. As the weather warms your tire pressures will rise and you need to correct the pressure from time to time. The spring monsoons bring out the worst in old hard tires. Most tires lose their wet weather capabilities after 20k miles or three years. The degradation is quite slow and insidious, so, if your tires are approaching or over

these rough limits, test them in a safe place for changes in cornering and braking limits so you don't get surprised on the road.

It is also time to think about the driver's schools. If you have any drive to drive come on out to the schools and learn something fast. If you just want to check it out, come on along and spend a day or two working for your club on a corner, pumping gas, or whatever. The WMMA's schools put on by our region give you the best of class and track time and provide the largest number of licensed SCCA instructors and approved BMWspaceCCA instructors per school. There is almost always one instructor per student so you don't have to wait or lose track time. I will guarantee that you will come away with some skill that could save your bacon and maybe more.

Well that's about it for now. Please don't hesitate to call me on the Tech Advisory number 703/255.0510 in the evenings between 7 and 10 P.M. Actually you can call anytime and talk to the answering machine and I will get back to you as soon as I can. Please don't call after 10 P.M. unless it is an emergency... ☺

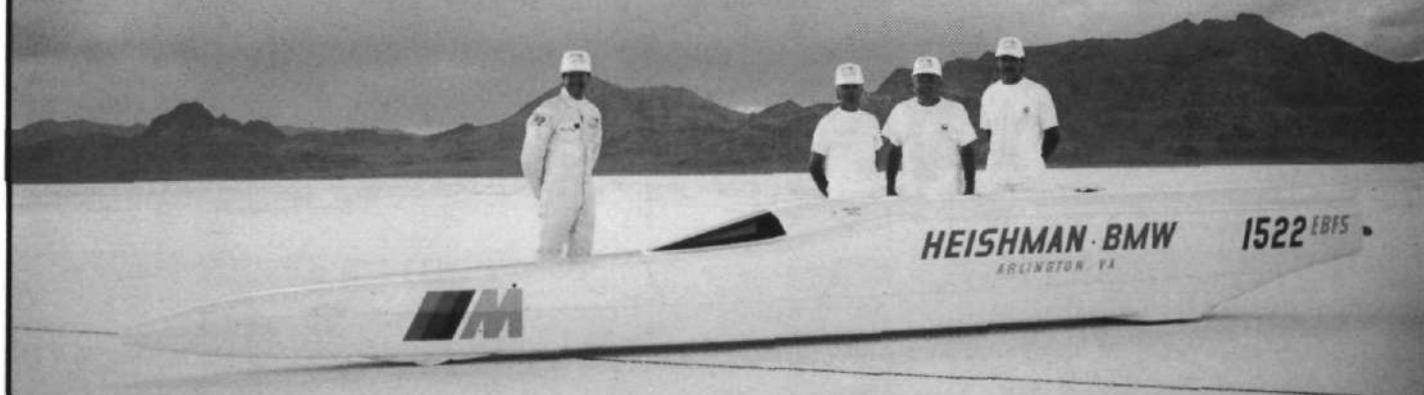
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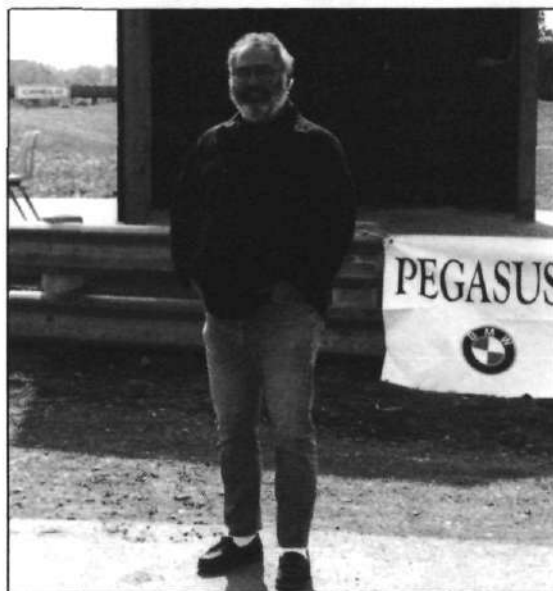


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To Sandy, condolences on your loss.

Photo by Paul Vessels



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Annual Treasurer's Report

Jennifer Nazarko

The good news is that we still have a positive net worth; the bad news is that we spent more than we brought in (but not much). Income was good in autocross and drivers schools, but advertising revenue came in at just a little over half of budget (\$9,125 versus a budget of \$15,000). However, as with previous years, we will continue with the production of our fine Chapter magazine, and we will not raise rates. Our national dues subsidize the magazine, and we do not believe it would be fair to raise advertisement rates with the current economy, so they will stay at the 1989 rates for another year. Please continue to spend your car related expenses with our advertisers, and tell them how much you appreciate their support of the Club. With dues and other event income, total revenue came to \$76,490 versus a budget of \$78,327.

Expenses were over budget by \$3,015. Items that make up most of the increased expenses include the Crabfeast and Concours (both events which are excellent and deserve more club participation), awards/plaques, and the newsletter (\$26,272 versus a budget of

\$24,750). We also made more T-Shirts than were budgeted, and the cost overrun is mainly for the polo shirts with the Chapter emblem embroidered on them. (We do have several still in stock so it's not too late to get yours.) We made other BMW items available as well like chapter stickers, grill badges, nametags and sweatshirts.

We came in under budget for autocross expense, the Swap Meet, Drivers Schools (overall), Orioles tickets, telephone and travel expenses. Total expenses came to \$76,610 versus a budget of \$73,595. Net Excess Income over Expenses was -\$120.60 (talk about almost right on target!).

As we started to do last year, we try to get a sponsor for every event to help defray costs, and to keep your cash outlay for fun to a minimum. If anyone has questions about the Chapter's 1992 financial report, please do not hesitate to contact me in the evenings, before 10 pm. From myself and the whole Board, Thank You for your support and we look forward to another great year! ☺

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Road Rallying: Part C

David Roach

In Europe, the most popular road rallies are "pro" rallies, also known as "performance" rallies, "stage" rallies, or the more vivid term, "crash and burn" rallies. While pro rallies incorporate some of the features of time-speed-distance rallies, they also incorporate many of the features of road racing. You can't enter a pro rally without a lot of training and preparation (to say nothing of a license from the sanctioning organization), but you can spectate. We're fortunate to have an SCCA national pro rally fairly close by, in northern Pennsylvania. It's called the Susquehannock Trail Pro Rally, or STPR, and this year it takes place on the weekend of June 5-6.

The Cars

Pro rallies, like road races, require specially prepared cars. Cars are required to have roll cages and "skid plates"—rigid plates underneath the car to protect the drive train from damage. Drivers and co-drivers (navigators) must wear helmets and fire-retardant safety suits. Many pro rallies, like STPR, are run mostly at night, so the cars must also have a wide

variety of auxiliary lights—fog beams, spot beams, and pencil beams.

In the U.S., cars compete in five different classes, determined by the type of car and the modifications allowed. At the top is Open class, where the cars must resemble their street counterparts in shape only. These cars are often tube-frame racing cars with 400 horsepower engines and Kevlar bodies. In Europe, such factory-prepared cars cost as much as \$250,000. Open class is also used for cars that have been out of production for a substantial length of time. Group A cars must meet stricter rules about resemblance to street cars. The Production classes—Production GT and Production—require normal street cars with modified suspensions and frames but stock engines (modifications include seam welding and bracing, stiffer springs and shocks, and the like). Production GT includes turbocharged and higher-displacement engines. There's also a RallyTruck class for small, two-wheel-drive pickup trucks.

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The Event

A Pro rally consists of two types of sections, transits and special stages. The transit sections are similar to time-speed-distance rallies.

Crews start from a checkpoint (called a Main Time Control) and are given an arrival time for the next checkpoint. They must arrive within one minute of their assigned arrival time. These transits usually cover open, public roads and are used to get from one special stage to the next. Sometimes the transits include a "service break," where the cars can be refueled and repaired.

Special stages are the exciting part. Here, the cars are started at one- or two-minute intervals, and they try to get to the other end of the stage in the shortest possible time. Scores are determined by the number of seconds it takes them to traverse the stage. Special stages are run on closed roads, such as state forest roads or logging roads; most special stages in the U.S. are run on dirt roads.

Each co-driver is given a set of route instructions called a "route book." The route instructions are similar to time-speed-distance route

instructions, but no average speeds are given, as the ideal average speed is infinite. The route instructions contain the distance from the start of the transit or stage, the distance from the preceding instruction, the distance to the end of the transit or stage, a "tulip" or pictorial diagram of the road configuration, and other information, such as signs or exclamation points. A single exclamation point means "take note," two exclamation points mean "use caution," and three exclamation points mean "use extreme caution."

The co-driver operates a rally computer that gives time of day and mileage to the nearest hundredth of a mile. His or her job is to read the instructions to the driver; for example, "one tenth to sideroad left, then sweeper right," meaning "in a tenth of a mile, we'll pass a side road on the left and then the road curves to the right." Usually, the co-driver watches the car's mileage and counts the driver down to the instruction; that way, the driver has a clue as to what's coming up. In addition, there are usually reflective arrows posted just before most intersections and some of the more severe curves.

continued on next page

Road Rallying: Part C

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Road Rallying: Part C

continued

Driving

Obviously, the driver has to work very hard to keep the car on course and at speed. Most drivers brake with their left foot and are constantly fiddling with the gas and brake at the same time. Many drivers, like Rick Davis, driver of the only pro rally 2002 in the East, never use the clutch; instead, they match rpms by putting the car in neutral for a moment, revving the engine, and the sliding the car into the next gear.

To get around corners, the drivers generally try to put the car in a controlled slide as they approach and then use brake, gas, and steering to get the car through the corner. The object is to induce oversteer as you enter the corner so the car will be pointed at the exit as early as possible. Momentum is the key, especially in the less powerful classes.

Seeds

At the start of the rally, the cars are assigned a starting order, which isn't necessarily the same as the car numbers. This is done by "seeds," which, like seeds in tennis, are based on experience and past performance. Pro rally cars can put a lot of wear on dirt roads, so a low seed is a definite advantage. If it's dry, the drivers have to contend with dust; if it's wet or snowy, they have to contend with ruts. Obviously, the closer you are to the front of the pack, the better. The first seed is for drivers with FIA (international) licenses; FIA seed cars are generally started two minutes apart, and the other seeds are started at one-minute intervals. Cars are often reordered within their seeds during the event, based on their stage times. Thus, if a car that started the rally in fourth position comes by later in first, you can tell that he or she is doing well. On STPR, cars are "re-seeded" at the dinner break.

The STPR

The STPR is a very well organized event run out of Wellsboro, Pennsylvania. A newspaper/program is available at the event that gives directions to spectator areas and arrival times for the first car. The rally starts with a "parc expose" at the center of town in the early afternoon; you can walk around, look at the cars, and talk to the drivers. The afternoon stages (usually two or three) include the famous "water crossing," where the cars ford a stream and cross the stage timing line in the middle. Although most of the drivers don't like the water crossing, the spectators do.

The night stages are very exciting. All is pitch black as you stand in the forest alongside the road. If you listen carefully, you can hear the cars approach before you see their lights. Then, suddenly, the night lights up as bright as day, a car thunders by, and all returns to darkness and silence.

Does this sound like fun? Do you want to see what it's like? Well, come on up to STPR. Wellsboro is about five hours from Washington, up U.S. 15, and the show starts early in the afternoon, so you'll need to leave very early on Saturday morning. Once you get to Wellsboro, go to the town square and check out the cars. But watch the time, and leave for the first spectator point at least half an hour before the first car leaves the start. The fastest cars come through first, so if you want to spectate at more than one spot in the afternoon, stay for the first 10-15 cars and then high-tail it to the next spectator point.

After the afternoon stages, the cars return to Wellsboro for a dinner break and then re-group at the town square. The night stages start at about 8, and the rally ends at 3 or 4 in the morning. There are several evening spectator points, including a service break.

You won't find much in the way of accommodations in Wellsboro (the rally people usually have the town booked up), but you can find rooms in Mansfield or Williamsport. If you'd like to go, call me at 301-593-3285 for directions. We can either caravan up or meet at the town square in Wellsboro. I'll be working as service crew for NCC members Ken Beard and Jim Miner, who rally in a Production GT Dodge Omni GLH. Leslie Suddard, another BMW CCA member, will be driving her Omni, and Rick Davis promises to have a BMW of some sort at STPR.

Directions to Wellsboro

From Washington and Baltimore, take I-83 North to Harrisburg, Pennsylvania. You can go around Harrisburg via U.S. 15, which is about 2 miles East of the intersection of I-83 and I-81. Following 15 through Harrisburg is complicated but well marked. Stay on 15 for nearly ever (it snakes along beside the Susquehanna River), through Selinsgrove and Williamsport and on to Mansfield. At Mansfield, take U.S. 6 West to Wellsboro (about 15 miles). Once you're in downtown Wellsboro, turn left at the traffic light where 6 turns right and go about half a mile to the town square on your left; that's where the rally cars will be. Stop on the way and pick up a program at the Penn Wells Hotel. ☘

CORRECTIONS

If you had trouble relating the discussion of the "trap" to the drawing of the road configuration in my article in the March/April issue of *der Bayerische*, you're not alone. The drawing was incorrect; the leftmost occurrence of route 742 *should* have been marked as route 741. The editor and I apologize for the error. If you've already figured out the error, then you'll do well on TSD rallies.

If you'd like a corrected drawing, send me a self-addressed, stamped envelope (David Roach, 10425 Edgewood Ave., Silver Spring, MD 20901).

In the TSD rally calendar in the March/April issue, the rally listed for July 11 has been moved to July 18. 🍀

PRODUCTION NOTES:

Regrets for our part in the confusion!



Rick Davis at Harrisburg Road

Photo by David Roach

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May 14-15	Jefferson 500 Vintage Races, Summit Point, WV
May 23	Corvair Club Champ Autocross, DC Area
May 23	Washington Rally Club Rally, DC Area
May 31	IMSA GTP/Supercars/Barber Saab, Lime Rock, CT
June 6	BMWCCA Autocross, Landover Mall, MD
June 6	SCCA MARRS Races, Summit Point, WV
June 6	NASCAR Winston Cup, Dover, DE
June 5-6	SCCA National Tour Autocross, Norfolk, VA
June 12-13	IMSA GTP/GTS/Firehawk, Mid-Ohio
June 13	Branded Club Rally, Gaithersburg, MD
June 13	FIA Formula One GP, Montrea, Canada
June 13	NASCAR Winston Cup, Pocono, PA
June 26-27	IMSA ~TP/GTS/Supercars/NASCAR Busch, Watkins Glen, NY
June 27	SCCA National Races, Summit Point, WV
July 5	BMWCCA Driver School, Summit Point, WV
July 11	SCCA MARRS Races, Summit Point, WV
July 18	Wash Rally Club Rally, DC Area
July 18	NASCAR Winston Cup, Pocono, PA
July 24	SCCA Trans-Am/World Challenge/Pro Shelby, Lime Rock CT
July 25	BMWCCA Champ Autocross, Ft Meade, MD



Ken Beard & Sim Miner "slalom" down the ski slope at Harrisburg Roundtop

Photo by David Roach

The last issue of *der Bayerische* carried a description of the first 100,000 miles in my '87 325is. From November 1991 to March 1993, the car has rolled over another 30,000 miles. Some modifications and broken and worn-out items have caused substantial expenditures over the last 15 months.

The original shocks were replaced at 104,800 miles. Discussions with numerous parts people, "experts", and other owners produced no consensus on which model to buy. The adjustable Koni or Tokico would seem to enable one to dial in the proper stiffness, but some swore it was just a marketing gimmick. I finally made the decision to keep the original springs so I could stay in the stock autocross classes. A set of Bilstein Heavy Duty shocks were obtained at a good price and installed. Much to my chagrin, the car body now sat .5 to .75 inch higher than stock. The ride and handling were fine, but it really looked weird. No one, including Bilstein, could explain why my car was higher.

I then decided that shorter springs were a must. Officially, Bilstein says that only their

"Sport" shocks should be used with shorter springs, but I found that there are many suspension packages that utilize the HD shock. Again, there is no consensus of opinion on the pros and cons of progressive rate springs. I finally decided on the linear rate Korman Sport Springs (I think they are made by Suspension Techniques). They lowered the car about .75 inch below stock in front and .5 inch in back. The ride did not seem any more harsh than stock. On the other hand, I was disappointed with the amount of body roll that was still present in hard cornering.

Shortly after installing the springs, I found a set of huge anti-sway bars at the Electrodyne Yard Sale for \$25. Measurement showed them to be 25 mm for the front and 21 mm rear. Most after-market bars for the E-30 3-series are 21/19mm. The manufacturer of these bars could not be determined and there were no end-links or bushings. Polyurethane bushings and rear end-links were obtained from Korman, and front links from Electrodyne/Racing Dynamics. At the same time I obtained these items, I

continued on next page

The Next 30,000 Miles

Woody Hair

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The Next 30,000 Miles

continued

got a set of M3 lower control-arm bushings. Their offset hole adds a slight amount of negative camber to the front wheels. These parts and the labor necessary to install, and later re-enforce the mounting points of, these \$25 anti-sway bars ended up being unbelievably expensive. Thankfully, the handling and flat cornering attitude are much more to my liking now. The negative camber in front has greatly increased the mileage I get on my track tires and lap times are better. Were these changes worth the expense? No way!

Do Tachometers Have Ghosts?

On the way to work one morning last July, my tachometer started fluctuating for about 5 minutes, then stopped working altogether. It worked again at lunch time, then stopped completely that evening. After estimates on possible causes and costs, I decided to live without a tach for the time being. Over two months later, while at a driver school at Mid-Ohio, I suddenly realized the tach was working fine. It hasn't missed a beat since then either.

Also last summer, it became apparent that the car was leaking power-steering fluid from one of the rubber boots. Keeping the reservoir full necessitated about 1 quart of automatic transmission fluid (\$1.30) a month, but I was afraid of being turned away by some driver school tech inspector, so after several months, a remanufactured rack was obtained and installed. I should note that there was a change in the model rack used during the '87 model year. This caused several trips between my parts supplier and repair shop.

My final and biggest trauma during these 130,000 miles occurred on my first run in the Oktoberfest autocross this past October in Florida. Shortly after starting, I realized the car was running on only 5 cylinders. Thinking it was only a spark plug wire, I finished the 1.5 mile run and sought out Dwight Derr's opinion. After pulling the valve cover, a broken rocker arm was found. The next day my car was trucked to Rennie Bryant's Redline BMW Performance shop in Pompano Beach. While the cylinder head was off to replace the \$10 rocker arm, a valve job was performed and the 17,000 mile-old timing belt was replaced. The car was ready to go 31 hours after they received it. Redline BMW Performance has been doing the engine work on the 2002 Project Cars of *Grassroots Motorsports* magazine, and Rennie races an ex-IMSA GTU BMW 325. Their shop may not look like much, but South Florida is lucky to have them. Everyone has told me their \$827 bill was dirt-cheap.

As the miles roll on, the car seems to have developed some creaks and rattles - maybe due to the suspension and sway-bar changes, the hard use the car has endured, or is it just old age (the car, not me). Oil consumption is still about one quart between 3,000 mile changes. The clutch and exhaust system are still original! It doesn't win as many autocross trophies in the Street-Prepared class now, but my 325is remains the best car I have ever owned. ☺

Note: See opposite page for the costs of this joy!

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Normally I don't get involved in picking out particular products to rave about, but recently I have used two items that I feel deserve mention. I drive a 1980 528i with over 200,000 miles. The following two products have given me a big "bang for the buck."

1. Blonde Motorsport "short shift kit." This reduces your throw by approx 40% plus gives your shifter that crisp feel. If you are interested, Dwight Derr can obtain the kit though the "Club Store." The average kit is \$100.00 and helps make the car feel new again.

2. Performance Friction "Carbon Metallic brake pads." I always used Ferodo until last year's O'fest. I tried the carbon pads at Sebring, the autocross, and for everyday use. They last longer, feel better, and no degrading of the rotor is evident. They pay for themselves in longevity. See the OG Racing advertisement in this issue. ⚙

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John Kenworthy

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Tech Tip: Building A Faster 325e

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Roy Hopkins

Having owned and driven a wide variety of BMWs, from rusty smoking 2002's to a Euro 635i, I was surprised how different my 1985 325e (bought this spring) felt from all the previous cars. It was not that the chassis felt looser, or the fabulous BMW handling and ride were missing; what surprised me was how different the motor felt. Instead of the high strung power band I was used to, the motor pulled like an American V-8 at 2000 rpm, delivering great low-end torque and good (28 mpg) gas mileage even with spirited driving. At Mid-Ohio, its first drivers school, the torque was most noticeable coming out of slow corners. The 325e would out pull most modified 2002's, until they got up on their cam. But, 325i's would just plain walk away from the stock 2.7 beta motor.

A 325e has several things working against it. Because of the beta tuning, the rev limiter is set at a very low 4750 rpm. Also, because of the low speed torque and economy goals, the gearing is a very tall 2.79 to 1. Since I wanted more power for drivers school and did not mind a slight decrease in fuel mileage, Joe Ajavon and I set out to modify the beta motor to produce more top end power.

Parts needed:

1. Improved camshaft-I used a new stock 325i cam.
2. Improved full management chip-raised rev limiter to 5800 rpm.
3. Set of complete 325i valve springs.
4. Head Gasket Set.
5. Higher numeric rear gearing (325is differential-3.73:1) many other ratios are available, for example-2.98, 3.45, 3.64, 3.91, 4.10.

Labor

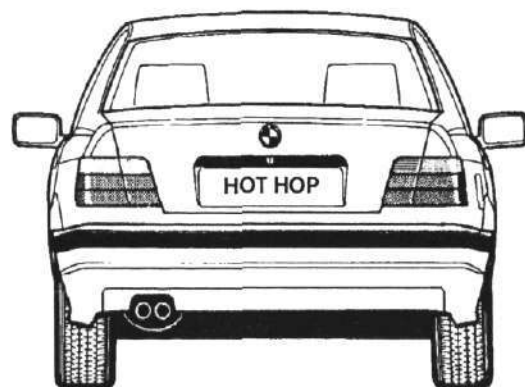
Several options are available, but since the head is going to be off anyway to put in the cam and springs, it makes sense to do a valve job if you have over 40,000 miles. I chose to replace my 100K mile motor with one I had brought from a roll-over with only 15K miles on it. The cam and springs were installed and all major components inspected, and of course the timing belt was replaced. Switching motors wasn't too bad, some of the transmission bolts were hard to reach, but other than that, the work was straight forward.

After a few nights of bolt twisting, the car was first started with the new upgraded 2.7L motor the morning of the June Watkins Glen Driver's School. Amazingly, everything worked perfect-

ly; there were no leaks, misses, or driveability problems. The only item that needed adjusted was the idle speed. I couldn't wait to get to the track and try out the new gearing and improved powerband. On the way to the track, the seat of the pants power gain was immediately noticeable, as was the 5mpg drop in gas mileage. The car pulled cleanly into the new higher rev limiter and needed to be shifted much sooner with the shorter gearing. Low end torque did not seem to suffer much as the car could be idled through towns at 1500 rpm without protest. At the track, the car easily pulled away from stock 325e's and could stay with stock 325i's. This was the first BMW I've had since the 635i that would pull cleanly up the hill out of the boot.

Is the conversion worth it? YES-the cost per hp is the best BMW engine modification you can do. It was much cheaper and easier than the traditional 2002 piston-cam-header-carb upgrade, and yielded more useable power with no driveability sacrifice. Sure it would be nice to have a 325is, but modifying a 325e (especially if you already own one) is a lot less money than obtaining a 325i. Plus, used 325e's are becoming great used car buys.

What's next? Maybe a bigger throttle body, a free-flow exhaust system and a higher rev limit in the chip. More power is an addiction! ☺



A pair of BMW M5s are running in IMSA's Supercar Series this year. The cars were race-prepared in England and the team has established their U.S. headquarters somewhere in Pennsylvania. One of the regular drivers is David Donohue, son of the former Trans-Am, Can-am, and Indy 500 champ Mark Donohue. Mark suffered a fatal injury while running in the NASCAR Busch grand National series. The other driver is Englishman Chris Hodgetts. The first Supercar race of the season was though the streets of Miami. Donohue's M5 was seriously damaged in practice and Hodgetts' car ran behind most of the Lotus Esprits, Porsche 911 Turbos, and Corvettes. One of the BMWs was entered in the Invitational Class in the Sebring 12-Hour Race. This class is supposed to be for production sports cars and was won by a specially built Porsche 911 Turbo driven by Hans Stuck and Hurley Haywood. The M5 was fifth in class and twentieth overall behind and other Porsche and two Corvettes. It was the only 4-door in the race. There is a chance the M5 race car will be on display at the Electrodyne/Racing Dynamics Open House in Alexandria on June 20.

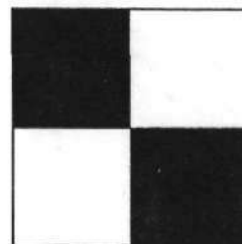
Finishing one spot behind the BMW was Charlottesville BMW/Porsche dealer Oliver Kuttner in a Porsche Carrera. Oliver had taken a Porsche off his showroom floor three weeks before the Daytona 24-Hour Race in February. Supposedly with little more preparation than a roll-bar and fuel cell, the car finished either 14th or 16th. IMSA's crazy rules allow a driver to participate in several car and he is shown in the results in more than on Porsche. In the "good-old days" of racing, no more than two drivers would share a car for 24 hours. Now, as many as seven different drivers share one car at Daytona. Some of this is due to the Sponsorship money that the drivers can add to the effort. Hopefully you will be able to see Oliver defend his Jefferson 500 title at Summit Point on May 16 with his BMW M1 Procar.

SPEEDSHIFTS: It sounds like there may be as many as 15 BMW 2002s running in the SCCA MARRS series at Summit Point this year. In addition to the regular BMWCCA driver school "graduates", several experienced racers are switching to Bimmers because it has proven to be the only make with a chance of winning in the popular Improved Touring - B class. The next MARRS race is June 6...

Our first chapter autocross of the year, one week before the big blizzard, drew a record turnout of 35 or so cars. David Lassalle drove

his stock 325is to first place on both the morning and afternoon courses. Afterwards, David said he really likes his new sponsor, Merchants Tire Company. Full results of the autocross should be elsewhere in this issue...

Chapter members Ken Beard and Jim Miner entered the SCCA Pro Rally run on the snow and ice-covered logging trails of Maine last December. While on one of the "special-stages" (flat-out speed sections), Ken rolled his Omni GLH onto its roof. After much effort they were able to right the car, but it was hopelessly high-centered until a one of their competitors stopped for about 30 seconds to tow them back onto the road. Ken and Jim didn't bring back any trophies, but they did go on to finish the rally. CRUNCH. ☺



Woody's Competition Corner

Woody Hair

Advertisers

Alexandria BMW Service	8
A.J. Video Service	29
Autobahn Motor Works	16
Auto Elégance	22
Auto-Therapy	33
AutoThority	31
Autowerke	27
Autoy	25
Bavarian Motor Maintenance	6
Blue Ridge Sports Cars	25
BMW of Fairfax	12
Craven Tire	20
Dulles Int'l Motorsport, LTD	17
Excluservice	19
Epting Motor Works	5
First Choice Body Shop	21
Foreign Car Parts	22
Foreign Service	24
Heishman BMW	9
J&F Motors	30
Master Crafters	33
Merrifield Texaco	11
Nat'l Transmission Service	23
OG Racing	5
Olympic Imported Parts	14
Passport BMW	13
Potomac Motor Works	23
Racing Dynamics	Inside Front
Radial Tire Company	9/Inside Back
Touch of Class	10
Tommy's Specialties	29
Wagonwork Corp.	15
WesBen Body & Fender	7

Cars for Sale

'72 2002Tii, car runs fine but has a rusted out drivers floorboard, 172K miles, sunroof, AC, body is in good shape, front fenders are new, repainted ice blue, blue and black interior in perfect condition, \$1000 whole or will part out. Call Phil 410/281.0075 eves.

'76 2002, rusted shock towers but lots of good parts. Whole or parts, \$600. Call Phil 410/281.0075 eves.

'80 528i, 117K. 5-sp, A/C, S/R, stereo, alloys, recent Yokohama AVS U+4, exhaust, clutch. Flofit, Suspension Techniques, VDO, Bosch fogs. Synthetic in all sumps. Polaris/Navy. This is a solid, reliable car, driven daily. Anything even remotely suspect was replaced when I got it just over a year ago. Everything works. Even the toolkit and flashlight are there! \$4500. Pete Cage, 310/253.1320 eves, 258.5923 days. See article in August, 1991 Road & Track for more info...

1989 750iL, Dolphin gray-black leather, 65K, all original, all fac. recalls & maintenance, \$35,000 or B.O., mint condition. Dennis McGuire 301/663.4357.

1974 2002ti, Maroon/black int., one perfect track car, needs nothing, \$4,000 Firm. Mike 410/727.3110 days, 410/484.4620 eves.

1983 320is, White/black interior, excellent condition - \$4,000 Firm. 410/727.3110 days, 410/484.4620 eves.

'83 320is, White on white, charcoal cloth Recaro interior, 5 spd., A/C, 44K, garaged, never driven in the snow, concours car (trophies to show), oil change every 2K, sunroof, "S" package. You have seen on the cover of dB. Carl 703/978.6018 eves.

1973 2002, Green/tan, 4 speed, 300K, good cond., B.O. Greg 703/912.6991.

1979 323i, Blue/Tan interior, 4 spd., 64K, New rebuilt head, A/C, Alloys. \$3,000 B.O. Call Andy 301/890.7776 eves.

1979 635 CSI, Silver/Black interior, 5 spd. close ratio, Rebuilt engine, A/C, Leather recaros, 16" Alpina wheels. \$7,000 B.O. Call Andy 301/890.7776 eves.

1977 320i, White/Tan interior, 4 spd., sunroof, A/C, rebuilt engine, Modified engine - 304 cam, Webers 45 DCOE, 10.5 pistons, 14" wheels, \$2,000 Sony stereo system. \$3,500 B.O. Call Andy 301/495.0159 eves.

1990 525i, Green/Tan leather interior, automatic, A/C, sunroof, heated seats, limited slip,

P-600 tires, 43K, Ext. warranty 6 yr/72K bumper to bumper. \$22,900 B.O. Call Paul 301/350.1988 eves.

1972 2002tii, Silver/Blue interior, very clean. \$4,000 or B.O. 410/224.0020 days, 410/269.0176 eves.

2002 Tii, '72 Complete Kuegal Fischer F.I. System w/2 sets of injectors, BEHR A/C complete, center consoles, Blaupunkt stereo w/cassette & 2 rear speakers, rear seat tan, interior panels front & rear heater system, steering wheel, Scheel seats tan, floor mats F&R. Steve, eves: 703/788.8331.

1970 2002, VIN 1676186. Agave, brown Skai, older restoration with all new body panels, no rust, excellent paint, 40 DCOE Webers, 300 factory cam, sway bars, special springs, stock appearing screamer. Killer Sony stereo, complete parts car VIN 1678385, MANY new and used parts included. Asking \$5,000. Bill 703/620.2698 eves.

1977 320i, Pristine cond. wrecked 1/2/93 parts available. Hartge suspension, strut bar tii dist., 85K on original eng., trans rebuilt w/4K, tan interior is flawless, BBS wheels (2 sets) blk. 14x6, gold 13x6, 3 mo. old stereo - Infinity Kappa 63, 6 1/4 (4), (1) Sony XP-100 4 Ch. 30 watts per channel, extra part (all new), hoses, water pump, bra (all used), orig. suspension, dist., Stahl header and more. Bob Crigler, Richmond. 804/358.7608 eves.

'76 2002, Great track toy. Dual sidedraft Webers, Stahl headers, Ansa exhaust, close-ratio 5 spd., 4 pt. racing harness, lowered adjusted castor, Schrick cam, make offer. David 202/363.1360.

Parts for Sale

Momo wheels, four, 13x5.5, for 2002, with Vredestein ST tires. Radial spoke design, similar to 320i alloys. \$200 for the set. Call David Roach 301/593.3285.

Kamei Front Air Dam for 2002, \$50, Bosch Rectangular fog lights \$50. Call Greg 202/328.1494.

2002 parts, 2 bbl. intake \$100; propellor shaft, rebuildable Spicer u-joints, H-D, \$125, Call Chris at 410/267.6242 mornings and weekends.

Subwoofer cabinet, custom made to fit in trunk of 1982-88 5 series. Complete with two 8- or 10-inch speakers, which may or may not work. Free to good home. Call David Roach 310/593.3285. ☺

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