



**BMW Car Club**  
of America  
North Star Chapter



**North Star Bavarian**  
May 2012

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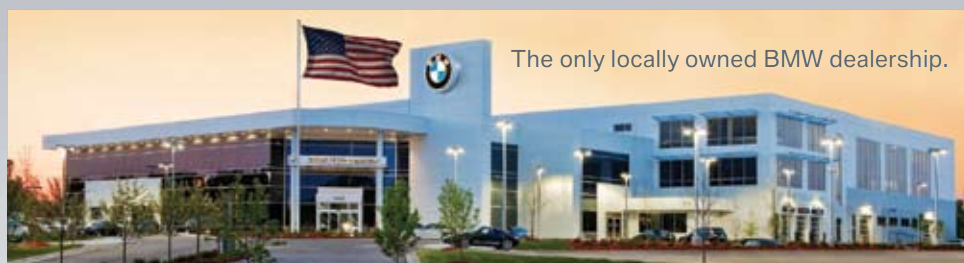


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## On The Cover

*Craig Lovold built a crazy turbocharged E36 out of a used Chump Car and a bunch of parts he found in his rather large basement. Yes, really.*



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In my final article as President of the North Star Chapter of the BMW CCA, I would like to thank all of you for your support of the club and your friendship. My two years as President went by quickly and I have many good memories from this time. I am stepping down as President to pursue other goals and to experience new things. I will still be around to support the club and help in various areas.

As I step aside allowing others to lead and shape the club, I urge those reading this article to consider how they can help. This club is entirely volunteer-based. Our valued board members contribute their time and serve the club with passion, a sense of responsibility, and dedication. It is very important to the longevity of the club, as well as the quality of our events, that our members contribute some of their time to help, up to and including filling open board positions. New people with their own set of skills and experiences enrich our club, and without the infusion of new talents and energies we risk having board member burnout and stale events.

If you have found value in our club’s events, met new friends, and/or have an area of passion or talent you can share with us, please consider giving back and volunteering. Worried about lack of experience? We would happily show you the ropes. Please contact me or other board members with your ideas!

Last August, car enthusiasts from the North Star Chapter and other car clubs viewed

the Twin Cities premiere of the documentary, Senna. The film covered the life and times of Brazilian Formula 1 racing legend Ayrton Senna. Senna died in 1994 in a crash during the Imola Grand Prix. The movie Senna is now available on DVD as well as Netflix.

The film is composed of a collection of videos from Formula 1’s archive, news interviews, home videos from the Senna family, and other behind-the-scenes material. The clips are, for the most part, assembled chronologically, and tell the story of Senna’s rise from a karting champion in Brazil to a 3-time Formula 1 World Champion. Some of the media personalities and persons who knew

Senna add illuminating commentary, adding context to his life and the key events that took place.

For the hardcore racing enthusiasts the film is, as expected, spectacular. It is a thrill to watch the in-car video of Senna zipping through the narrow streets of Monaco, passing other competitors as if they were on a parade lap. There are several key moments in Senna’s racing career, and we get to see those from multiple angles with commentary explaining the significance of each in F1 history.

When the action is not on the tracks, we are treated to a behind-the-scenes view of the elements of the world of Formula

1. There are insightful interactions between drivers and their engineering teams, the media, and Formula 1 management. I especially enjoyed the banter between the drivers and then-Formula 1 boss Jean-Marie Balestre, as well as peeking in on the drivers’ pre-race meetings. You come away with a feeling of their high-stakes, high-reward world. The director definitely wanted the audience to see that behind all the on-track drama, there was also plenty of off-track drama with the numerous political webs in Formula 1.

The key dramatic matchup in the film is the rivalry between ex-teammates Senna and French F1 champion Alain Prost. Their relationship changes through the film: From being teammates, then to bitter rivals, and eventually ending with respect. The contrasting of the two drivers’ personali-

ties does explain why it was inevitable they would become rivals. Prost thought methodically, kept those thoughts and strategies to himself, and drove his car precisely by taking calculated risks. Senna was emotional almost to a fault, readily shared his feelings with the press, and drove his car on the edge, taking risks other drivers would not. The common link between the two drivers, and major contributing factor to their rivalry, was of course their intense desire to not only win, but to be a world champion.

One of the special parts of the film not to be overlooked is Senna’s achievements away from the race circuits. The film does a wonderful job letting the audience know the man behind the driver. We come away seeing Senna as a sensitive person, devoted to his family even though he had not started his own. We also see Senna was more than just

a sports figure to worship; he was also a philanthropist for the less fortunate and a spokesperson for Brazil. Senna donated large portions of his fortune to poor children, and near the end of his life created the Instituto Ayrton Senna, an organization dedicated to helping Brazilian children.

I came to appreciate and admire Senna more and more throughout and after the film. Sporting stars these days give by-the-book answers to media questions, donate minimal resources to charities, and even “play” only when they want (Randy Moss, anyone?). Senna was nothing like this. The only things in life he valued more than racing was God, his family and his home country of Brazil. Senna took pride in his racing, and was never entirely satisfied with his driving. He gave thoughtful, insightful and honest answers to the media’s questions. As

Senna grew older and more successful, you could see that helping the people of Brazil became increasingly important to him. Although he only lived to 34, Senna lived a more vibrant life than most people are fortunate enough to do.

A final piece to note: I encourage racing enthusiasts to share this film with non-racing enthusiasts. It is a very well made documentary I feel most persons will enjoy because it tells a story of triumph and tragedy. There are poignant life lessons to be learned here.



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Winter Is A Time For Reflection

That's the word among us car-crazed as we wait for spring. Maybe you are one of them. I know I am. I have been reflecting on the joys of "autoerotic dependency" (see my book) for more than 50 years.

My conclusion: We are all blessed by our obsession with cars. We are even more blessed by the great people who share our passion.

Just bombing around backroads and trying to stay out of trouble with the law is fun. "But join a club to do it right," I said to myself. So I became a member of the Nord Stern Porsche Club.

I started my learning process in my brand new 356B Porsche, a 1960 red ragtop. New, it cost about \$3,700. I really couldn't afford it and the poor thing had to suffer the indignity of sitting outdoors year 'round. That was my tradeoff with my wife, Marion, who insisted on keeping our one-car garage for the family car. I can't remember what that was.

But I was now a real Porsche guy and a member of Nord Stern. They hustled me off to Brainerd's Donnybrook Race Track for some serious driver training. You've probably been through it. Today it's the Brainerd International Raceway, but the drill is the same.

First you walk the track. All three miles and ten turns of it. And you pay attention while the pro instructs you on the intricacies of staying alive while impressing your friends. Then comes the scary part. Your instructor takes you around the track at throttle. Straights are good for 200 mph. My 356 was only good for 100.

"Maybe I'll just stick to back road rallies," I tell myself. The club has plenty of those plus autocross events, parties, shows and more.

And if one car club is fun, wouldn't more clubs be even more fun? "Yes!" I said as I joined the BMW, Mercedes and Ferrari clubs.

It was a car show that brought my daughter, Angela, together with John Jacobson. They've been married 8 years. Is he a car guy? John restores them, bringing them back to life so beautifully that one is even in a museum. I just play with cars.

Every now and then I think about what life would be like if John had been an auto-immune guy. What would we talk about?

I started this column about my first Porsche. I close with my last (as promised to Marion), the Panamera. It cost more than our first two houses but boy do those 400 horses sound great! It goes like hell all the way to 175 MPH, but you don't get a stick to help it get there.

So a word of caution: Keep your stick shift as I have, because computers control most of today's new cars. While I write this, driverless car development continues apace.

Finally, Some Swag To Call Our Own!

North Star BMW CCA is proud to announce our new line of high quality merchandise. Since we now have a brand new logo designed by club member Brian Thull, we decided now was a good time to bring out our first round of clothing including t-shirts, hats and polos. There are many items perfect for both women and men. And remember that each purchase provides a portion of the price back to our club. Thank you for your support!

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# The Turbo Project

Words by / Photos courtesy of Craig Lovold

Those who know me are aware that for the last few years I’ve been collecting derelict BMW E36 3 Series, mostly 325i sedans. It started after my 1998 M3 sedan rolled and I bought a parts car to fix it up. I kept a bunch of the spare parts in my lower garage and sold a few pieces off to help defray the rebuild cost.

One of the cars I bought turned out to be fairly decent, and I decided not to part it out. It was a red 1992 325i sedan (with the non-Vanos M50 6-cylinder). I didn’t really need *another* spare car so I took the opportunity to turn it into a Chump Car, which we raced last year at Brainerd International Raceway. That was a blast, but afterwards I realized I wouldn’t really be able to race again for a few years due to family obligations, among other reasons.

In the meantime, I began wondering what I would do with a car sporting a full roll cage and a stripped interior, one that is rusty and looks awful. Maybe I can justify keeping it around as a spare car in case one of our other spare cars breaks down. Maybe I can make it into something fun at the same time. It would never be a pleasant daily driver. It is loud, and has no AC or rear seat. Plus the roll cage. I began thinking it could double as a track rat.

I mean, I’ve got a basement full of parts, so what the heck?

I began to take inventory of what was on hand. An M52 6-cylinder (1997 328i) engine with a cracked head but low miles, a good head from an M50 (1994 325i), and the camshafts from a 1997 M3.

I blame Steve Petersen at Blunt Tech for suggesting a turbo build. I’ve never built or tuned a turbo engine before so it sounded like a fun new challenge.

I sold the original engine from the 325i and used the money to have the M50 head planed and inspected, and had new valve guides put in. I put it back on with a .140-inch multi-layer head gasket to slightly lower compression and bolted it down with ARP studs, hopefully to keep it from lifting under boost. I built the engine on a stand in my garage over the winter. I traded a spare engine I had to Brynn Rogers for a turbocharger. I threw a Walbro high-output fuel pump into the tank to feed those hungry 60lb./hr. fuel injectors.

I could just barely see the edge of the slippery slope from here.

The M52 block is great because it has thicker cylinder walls than the S52 (E36 M3), so in theory it should be more durable and hold up well under boost. I planned to start at around 8 psi of boost. I didn’t plan to run higher boost levels because I wanted the engine to be durable. I figured it would probably be crazy fast enough to scare the pants off me anyway.

Then I needed some way to get the power to the ground. The stock 325i drivetrain definitely wouldn’t cut it. Once more into the basement! Rummaging around secured an M3 transmission and driveshaft, to which I added a UUC Carbon/Kevlar clutch. I also replaced the shifter detent pins and guides while I was in there, just to freshen everything up.

more:





I got to thinking again, which can never end well.

I had a bunch of trick performance M3 suspension parts in the basement! M3 front subframe with a Z3 close-ratio steering rack? Check. M3 front spindles with Bilstein shocks, Dinan camber plates and wheel studs? Check. Complete M3 rear suspension with wheel studs and Ground Control monoballs? Check. M3 rear subframe with Powerflex bushings? Check. Ground Control sway bars? Check.

This was getting a bit out of hand.

By then I had the engine, complete with SPA manifold and bottom-mount turbo, about to go in. I used a trick curved motor mount allowing the turbo intake pipe to come out straight forward instead of under the subframe like some people do. I can't believe anyone would run this *under* the subframe! There still wasn't enough room for the intake pipe because the rubber engine mount support was too wide. Brynn Rogers made me a set of solid billet aluminum mounts. I threw on some solid transmission supports to match the engine mounts.

I don't think there are any rubber bushings or supports left on this car.

I would have to keep this beast cool so I installed a radiator from an S54-powered BMW M Coupe, a Spal fan, and an oil filter housing and cooler sourced from a European-market M3. I got the housing and cooler from Chris Orr, who I also blame for encouraging me.

I programmed the base computer tune and I couldn't wait to see if the engine would actually fire up after all the work I did. There was no exhaust and the turbo plumbing was incomplete, so there was no boost. But I just had to try it. You

can't imagine my relief when the engine fired right up and settled into a rock-solid idle! No fluids spraying anywhere or nasty bangy snappy sounds.

A local guy helped my with the exhaust and wastegate and I finally got the car on the road. The spare Supersprint muffler I installed has a nice mellow sound while not loud enough to draw undue attention.

I had the wastegate set to open around 5 psi. I wanted to start out at a low level to make sure everything was holding together. After I started getting a bit more confident I saw the boost was going higher than I intended, to around 12psi. The engine is built for a reliable 15 psi so I wasn't too worried, but the boost was surging and inconsistent.

While trying to figure out was going on I took a friend for a ride over lunch. I dropped the hammer in 3rd gear at 55 MPH and the boost suddenly surged to 25 psi. Both rear tires broke loose and the back end did a little dance. Yikes! I later discovered the boost source I had used for the wastegate was getting turbulence. Moving the source farther from the turbo tamed the wild boost surges.

The car is an absolute blast to drive. It is definitely worth all the effort. It vibrates. It bumps and buzzes. It transmits every crease and ridge in the road right through you. The steering is tight and precise. The engine makes the most glorious sounds. You can hear the turbo spin up, and every shift results in a solid thunk. The closest thing I can compare the sound to is a WRC rally car.

I'm keeping it as ugly as possible. The tinted rear windows make it harder to spot the roll cage from the outside. I slapped an old wing on the trunk just because. It's rusty and dirty on

*more:*







...the outside but shiny and new on the inside. The old racer saying 'keep the shiny side up' doesn't really apply to this car since the shiny side is underneath.

So if you see a tacky-looking, red 325i sedan with suspiciously tinted windows and a J.C. Whitney-style wing give me a wave. And listen for the turbo.

Dale,

*I thought you might get a kick out of this. Did you ever see the E36 cockpit that I cut out and made into a driving simulator? I had to tear it down to make room to finish the basement, but I'm working on bringing it back to life. Last time around it had a plastic pedal set on the floor that I wasn't happy with. I had the PlayStation steering wheel attached to the end of the steering column so I could use the stock E36 steering wheel, which was kinda neat.*

*That was fun, but I want to take it to the next level. The plastic pedals will be replaced with metal pedals mounted from the top so they will be much more like the factory pedals. The brake pedal will be hydraulic, so it will feel like a real brake pedal. The stock BMW steering wheel will be replaced with a Logitech G27 wheel. I wanted to keep the factory steering wheel but it isn't practical. The Logitech wheel has paddle shifters and shift lights on it, so it makes more sense to just use that. And this time I will hook it up to a PC running iRacing. Hopefully with a multi-monitor setup.*

*With any luck I should at least have it mostly done and running before the Garage Door Opener.*

Craig L.

Oh, boy. Did he ever! -Ed.



## Meanwhile, Back at the Wrench... *Jonathan Bush*

### Of Old Men And Old Cars

Like many of us, I was indoctrinated into the Cult Of Car at a very young age by my father. He probably didn't even know he was force-feeding me the Kool-Aid. Regardless, I'm pretty sure my first word was "car." Which is good, because it could have been a lot of other things.

If it was the weekend, Dad was wrenching on his Fiat 850 Spider to better the chances of completing his 100-mile round-trip commute from our home in southwestern Connecticut out to Long Island, NY come Monday. It wasn't so much that the Fiat was unreliable. Rather, when you have 850 cubic centimeters of Carlo Abarth's rage on tap, it's best to keep it in fine fettle.

Wrenching next to him on his own Fiat 850 Spider was Dad's best friend, Woody, whose son Reed would become my best friend. Woody had a shorter commute, but his reasons for fiddling on the Fiat were essentially similar; they were Fiats in Connecticut. So much so, in fact, that Woody's eventually broke in half.

Meanwhile, Reed and I were performance-tuning our tricycles.

Assuming his Fiat was happy, Dad might be playing with our Datsun 510. This green 1972 station wagon was Mom's grocery getter. Some of my earliest childhood memories include sitting on the floor of the back-seat area playing with my Matchbox cars on the rear seat cushion while Mom ferried us to Burger King. Hey, it was the 1970s. Seatbelts were something that happened to front-seat passengers.

The extended Bush clan had many Datsuns, including 510s, 610s, the occasional 710 and 810, and Roadsters, but strangely no Z cars. Dad's brother Jerry and my oldest cousin Elan kept the fleet running for that end of the family.

Throughout my teen years these guys all worked on cars. Elan and Jerry had a couple of Roadsters, a 610 wagon, and an 810 coupe. Reed and Woody moved on to an Alfa Romeo Spider and a Mercedes-Benz 300SD Turbo that had belonged to jazzman Benny Goodman.

We still had the 510 wagon, but it was largely a garage ornament by then, a victim of my failed attempt at a restoration: the body a sculptural medley of 2x4s and bondo, and the fuel system feeding from a gallon jug wedged under the hood. Dad and I would still work on my Rabbit convertible and his own Datsun Roadster, two of the better-functioning examples of our actual abilities as shade-tree mechanics.

As time went on, more and more of the cars they had to tinker with fell by the wayside. In 1990 Jerry traded his 1985 BMW 735i five-speed in on a Lexus LS400 and never looked back. As he put it, once the 7er had fully funded the local BMW dealership's new showroom, there wasn't much point in keeping it. That, and my aunt drove it through a deer at 75 mph.

Jerry toyed with buying an 850CSi several years ago. We talked about the history and significance, as well as the care and feeding, of such an animal. I did some searching around and connected with a guy in southern California who had a stunning Lagunagrun-on-Parchment example with low miles and all the paperwork. In the end Jerry decided he didn't care enough about a car he would have to pay attention to, and we scrapped the plans.

Somewhat recently, Elan had a couple of Volvo 240 Turbo wagons. He tried to get his son and daughter into it when they decided they wanted to learn about cars. Once the kids moved on, so did Elan. The projects went away, and these



days he rolls in a 2007 335xi coupe.

Woody flushed the 300SD once the electrical system started going sideways, which is odd for a W126 Mercedes. It was also developing some nasty rust because, despite living out its final days in Virginia, its early years were spent in Connecticut and New York.

Woody now drives a Toyota Tundra four-door when he and his wife Linda aren't using their Lexus LS460. Woody still wrenches on his yard implements, and builds the type of furniture you'd typically find at ultra-high-end home-furnishing stores. Indeed, he created the wood trim for my 1972 Bavaria from Birdseye maple using some old pieces as patterns and sheer acres of talent.

Dad still has his Roadster. He drives it in the nice weather and wrenches on it as necessary, which isn't very much because it's not British. I think the last items to fail were the clutch master cylinder and the battery, and both of those were several years ago.

A few summers ago my parents were visiting and Dad helped me replace a trunk hinge on the Bavaria. Replacing said hinge isn't such a bad task. Reinstalling the trunk torsion bars is bad, and worse. A symphony of anger and profanity severe enough to set off the local tornado sirens accompanied the job. Still, Dad was into it, happy to lend a hand.

Now we have the next generation coming up. Reed spins the spanners on weekends, and his young daughters are showing an interest in garage endeavors. My own son is a little young at two, but he's already showing great progress, at least in taking things apart.

And he's got a shiny new tricycle that's just begging for upgrades.



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## Club News

Our 2011 New Member Picnic was a huge success thanks to our members and volunteers. Now we are looking forward to our 2012 shindig at our NEW location!

**Brookview Park  
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(Under the Big Shelter)**

**We can't wait to see you!**

### North Star BMW CCA 2012 Presidential Election

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Thank you for taking the time to cast your vote for the next Board President and Vice President of the North Star Chapter BMW CCA. We appreciate you taking a few moments to participate. Simply enter your BMW CCA membership number, vote, and then click the Done button.

Thank you again!

**Please visit:**

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**to cast your votes in our 2012 Election!**

**The ballots will remain open until June 30, 2012.**



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