

Der Sonnenfleck

Sunshine Bimmers Newsletter

Fall 2014

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You're never too Old for School Days Report and Photos by Bob Compton

Our latest technical session for the education and enjoyment of our Chapter's members was held on October 18 by German Motorwerks owners Deborah Pandeline and Jim Shoemaker at their shop in Longwood.



The session got started a little late as there was only two of us at the appointed time of 9:00 am. Jim continued working while waiting for others to arrive. Chris Cochran and Bob Compton availed themselves of the coffee and doughnuts provided by the Chapter. Others to arrive were at a stylish time were Al Butler, Amy and Mark Rutenberg, Katherine and Joseph Lenart, Daniel Sherron, Mark Helseth, Dawn Borden, and two new members whose names I did not get.

Jim first explained what cars the shop actually works on – mostly German cars with an occasional Japanese or American car or two or three. But Jim prefers the BMWs, which is why all of us were there. Jim does all the mechanical work on the BMWs, but, when necessary, will sub-out parts of a larger project so the customer will not have to go to multiple shops to get all the work done. Jim also takes on partial to complete restoration of cars and race car prep and service. It is a very busy place.

After explaining what all the shop does, he asked for service questions from the attendees. There were lots of questions including some about the very new BMWs. Jim said he does not usually get to work on the very new models until the warranty expires. He also did a demo using two of his scan tools using the Lenart's 128i as a patient. (You can see a photo of the Autel scanner in the collage.) The Autel is sort of a personal scanner that auto enthusiasts can buy. (The newer Autel AL619 OBD II scan tool is available from online sources for around \$130-Ed.) Jim also has a much more complete and expensive scanner that the BMW dealers use and you can purchase for \$17,000.

The gathering broke up about 11:30 and we all thanked Jim and Deborah for once again hosting the tech session for the club.

Sunshine Bimmers Dinner November 16 in Mount Dora

Our next Sunshine Bimmers Chapter event is an authentic German dinner at the Bavarian Haus in Mount Dora. The restaurant is located at 433 N Alexander St. on the north side of downtown. Contact the restaurant at (352) 735-8387 or go to <http://www.eatatthebavarianhaus.com> online.

Sunshine Bimmers Annual Meeting and Dinner December 12 in Winter Garden

After testing alFresco, a farm to table restaurant specializing in local food sources in downtown Winter Garden, during our October Teutonic Tuesday event, we will return to this establishment for our Annual Meeting and Membership Dinner on Friday, December 12, starting at 7:00 pm. The restaurant has an official address of 146 W. Plant St., Suite 140, but it is really one block south of Plant Street directly across from the large public parking lot on Tremaine St. You can go to the restaurant's website at <http://www.alfrescowintergarden.com> for more information. The Club will pay for the meal, including non-alcoholic beverages, for each member, associate member, and one guest. Attendees will be responsible for alcoholic beverage costs. RSVP to Al Butler at abutler@mpzero.com by December 7. Our dinner menu will consist of:

Appetizer of a trio of dips: Hummus, Tomato Bruschetta, and Spicy Feta Dip, all with Pita and Vegetables

Dinner choice of (your selection at the event):

- Chicken Florentine Pasta
- Chicken Marsala over Wild Rice
- Sautéed Salmon over Vegetable Risotto
- Roasted Pork Loin over Garlic Mashed Potatoes & Seasonal Vegetable

Dessert- (Family Style) will be Chocolate Tres Leches

Election Results

There were no objections raised to the proposed slate of candidates for the 2015 Board Year, so we will avoid the formal election process under the option afforded by the Chapter's Bylaws, which the members approved at the 2013 Annual Meeting. The Board of Directors for 2015, which begins at the end of the Annual Meeting in December, will be:

- President – Amy Rutenberg (newly elected)
- Vice President – George Poelker
- Secretary – Don Wright (newly elected)
- Treasurer – Patrick Spikes
- Director – Deborah Pandeline
- Director – Joseph Lenart (newly elected)
- Director – Nick Katona
- Social Event Coordinator – Mark Rutenberg (non-voting)
- Driving Event Coordinator – Patrick Spikes
- Newsletter Editor – Joseph Lenart
- Webmaster – Al Butler (non-voting)

Why You Can't Work on Your Car Anymore

by Al Butler

I was recently assessing how much work I could actually do on my own 2009 328i. I had thought it was going to be fairly straightforward to keep doing the wrenching I had always done, since I stay away from the fancy bits of the motor, transmission, and differential. For example, I frequently changed brakes and other bolt-on pieces for track days and “excessive wear.” But this car told me the world had changed. I couldn't even change the calipers without one of those \$17,000 computers Bob talked about in his Page 1 article. This is because the computer has to bleed the rear brakes. Otherwise, the car will think the brake lines have broken and will cut off pressure to the rear of the car. It also takes all day and about a gallon of expensive brake fluid because the air bubble will sit in a junction under the front seat of the car. The computer display actually tells you when to press on the brake pedal and when to release it, checking the brake line pressure each time to determine whether that air bubble is gone.

I have also heard about issues with changing the battery, which requires the car to be told the battery has been replaced—and which requires that expensive computer—in order to avoid the battery being drained by an electrical control system that senses a problem with the battery and turns off the alternator. It seems my car has an Intelligent Battery Sensor with its own microcontroller that communicates with the rest of the car's control systems. I also learned it is very easy to break, with required replacement by a new unit. So, I and everyone else who owns a 2009 or newer BMW has to go to the dealer to get a new battery and it will take many hours to accomplish. No more calling AAA when the battery suddenly fails—and we all know that is exactly how BMW batteries fail: they work great to get you to the store, and then you don't even get a clicking sound when you try to head back home.

So I did a little research to find out what else was no longer something I could work on and came across a thing called the CAN bus that answers all my questions. The CAN bus is the controller area network, which allows all those little computers in my car to talk to each other without requiring a master controller to tell them what to do. And like the other kind of bus, this one can take me somewhere: the shade tree mechanic's version of hell.

The CAN bus is a pair of wires that run throughout the car connecting the control units and sensors to each other and allowing them to send messages using zeroes and ones, which the devices see as high and low voltage levels on those wires. Those zeroes and ones form messages using hexadecimal numbers (base-16), which uses the letters A-F to represent what we call 10-15 in base-10 numbers. If you have worked with computers very much, you should recognize base-16 numbers. The units connected to the bus are called nodes. The CAN bus was invented by Robert Bosch GmbH back in 1983, became ISO standard 11898 in 2003, and was mandated for all vehicles sold in the USA beginning in 2008. For BMW, it first appeared in the 2007 X5 and MINI Cooper product line (that was the year MINI changed body structure). Bosch makes a little money from patent royalties on each vehicle sold and continues to refine and expand the system. The CAN bus is one of the signals available at the OBD II connector.

My car, according to Baum Tools Unlimited, Inc., a company that teaches people how to work on the CAN bus, has 19 major bus control systems, ranging from the one I mentioned earlier dealing with the battery, which is actually a bunch of systems, to the ones controlling the engine. Nothing, it seems, operates as it did 10 years ago. Take, for example, the up and down switch for the window. It used to be connected to the window regulator lift motor. No more, at least not directly. Now it goes to a computer, which decides what to do. Want to turn up the volume on the radio using the button on the steering wheel? That button is a sensor on the CAN bus that sends a base-16 message to the radio telling it what you want.

Speaking of that button, I came across a how-to article showing how you can change the radio to another brand and tell it how to read the steering wheel button's signal. The first step is figuring out what that signal is, as BMW doesn't publish this information. To do so, you can attach a scan code reader to the OBD II connector and watch the traffic stream while not pressing the button. This is the base condition. You then press the button in specific patterns and look for messages in the data stream that follow the same timing pattern. Once you have that information, you have to tell the radio how to respond to this signal, assuming you had the foresight to buy a CAN bus radio.

You and I are not likely to go this route, but there are enterprising people out there who are taking the time to reverse-engineer all the signals running on the CAN bus for things like throttle control and steering, both of which are now just signal patterns on the CAN bus. These are not nice people. They want to control your car. BMWs have Bluetooth and cell phone connections built into them as an aid to our interfacing devices with our cars. But these friendly interfaces often let in anyone who knows the code. The CAN bus has no built-in security. Each application using the bus is expected to have its own security protocols. The bad news: most have none. Relative amateurs have videos showing how they spent some time with a vehicle, figured out its CAN bus messages for car control functions, and then made the car do things without driver input while traveling around in a parking lot by sending commands over a cellphone connection—a connection that driver knew nothing about. (Hey, don't be so surprised. How do you think the dealer knew your car was ready for service and sent you that reminder postcard? The car called BMW and told them the mileage.)

We're no longer limited to worrying if our ignition switch is strong enough to hold up that wad of keys and fobs attached to our keychain, which is what caused all the excitement for GM recently. Now we have to worry that somebody is going to hack our car and start driving, perhaps while we are in it. Surprisingly, the big push now in the area of car control is not stopping such communications but facilitating it through a thing called car-to-car communications. This concept has each car talking to the vehicles around it in a type of mesh network where each car is a node telling the other cars what it is doing so they can negotiate a collective drive down the highway. BMW calls it ConnectedDrive.

The intent is to allow cars to tell each other about roadway conditions. If a vehicle ahead skids across ice on the road, it would tell the vehicles traveling behind it about the problem so they could take avoidance action, like slowing the car down, without the driver having to do anything. Or the cars could decide what speed the platoon would move down the road, averaging the various cruise control settings in order to smooth the flow of traffic. The autonomous vehicle of the future may not pay all that much attention to what you want in order to generate the greater good for all travelers. The CAN bus and its attached devices could turn into a real bus with its own driver, and you and I will just be along for the ride.

I'm as into all this computer technology stuff as the next guy, but my next car is likely to be an older BMW. You know, I've always thought the E46 was the best looking 3-series ever made. It also doesn't have Bluetooth or cellphone connectivity and I can bleed the brakes without having a \$17,000 computer buddy in the seat pressing on the brake pedal. I just hope I will actually be allowed to have such a dinosaur on the road. Maybe I would just have to stay off the interstates.

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Sunshine Bimmers Chapter Board of Directors

President Al Butler
abutler@mpzero.com

407-376-3258

Secretary Amy Rutenberg
Amanda.Rutenberg@health-first.org

Vice President George Poelker
gpoelker@gmail.com

407-230-8052

Treasurer & Club Racing Patrick Spikes
pspikes@cfl.rr.com 407-454-2057

Directors Nick Katona, Keith Proud, and Deborah Pandeline

Website:
www.sunshinebimmers.org

Chapter Photographer
Bob Compton

Webmaster & Newsletter Editor
Al Butler

Special Note: The Sunshine Bimmers Chapter was required to rent an official post office box as a condition of charter by BMW CCA. Our new official address is PO Box 3214, Windermere, FL 34786-3614; however, you should directly contact the person listed above who is most likely to be able to respond to your need, as the post office box is not checked daily.

