

E31news

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BMW Car Club
of America
E31 Chapter



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E31 Chapter **BMW Car Club of America**

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2021 Upcoming Events

Check group contacts for the latest information

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On the Cover: Thomas Engl's Orange 8 taken in Germany
December 2020

*By Henry Christoff
President, E31 Chapter*



Not driving my 8 as much this time of year, so I keep the Battery Tender handy!

Hello, E31 owners and enthusiasts! Happy New Year and best wishes for what we all hope will be a much better 2021! I think everyone is looking forward to the time we can again socialize with friends and family - and of course attend some automotive events.

Congratulations to the 2020 E31 photography winners! Thank you to everyone who submitted photographs! See Roger's comments and the photos elsewhere in this newsletter. Here are the results: First Place- Randy Muecke; Second Place – Alexander Murphy; Third Place was a three way tie (!)- Aaron Phinney, Thurston Pope and Wayne Willoughby. Best International Submission was awarded to Fabiano Moro, of Italy (congratulationi!).

The new “E31 2021 Motor T-Shirts” are now ready – available in both short (14.95 each, XXL 16.95 each) and long-sleeve (\$17.95 each, XXL 19.95 each). The new shirts should be available on our Swag Store in mid-January. Check the E31 Chapter Swag Site to order: <https://bmwccae31.qbstores.com/>

As you know from the monthly updates, your board have been working to secure two E31 components that have become no longer available. These are the North American-only headlamp adjuster kits and the 850i and Ci (all markets) power steering filter. Since Covid-19 has been such an issue both here and in Europe, research and feedback to our inquiries has been slow and there is no new information to report at this time. In mid-December, I learned from BMW Classic that the replacement adjuster kits were spearheaded by BMW NA. We have contacted BMW NA in New Jersey regarding the headlamp adjusters and are hopeful they will provide the necessary original supplier information for sourcing. Stay tuned!

Upcoming 2021 BMW / Automotive events – the Chapter needs your help. As I have mentioned previously, there are many national BMW events that are well known to the E31 Chapter board and we plan to promote these events in our monthly updates and on our webpage. However, there are probably more local-to-you BMW events that we have no knowledge of, and ask that you let us know what they are. These are events that you would attend. We'll post these events to our website. Events should be of interest to BMW owners and enthusiasts, and not just specific E31 or BMW only, although we do want to know about those too! Send your event info to me, pres@bmwccae31.com, giving as much specific information about the event as possible, including date, time and place and contact info. Thank you!

On one of our visits to Los Angeles, Kirsti and I stumbled upon a small automotive museum called Automobile Driving Museum, located in El Segundo (610 Lairport Street, El Segundo, CA). I am sure many SoCalEights folks know this place. It's not the magnitude of say the Petersen Automotive Museum, but certainly worth a look if you happen to be in Los Angeles. The admission cost is quite reasonable and parking is free. Every Sunday, weather permitting, they offer free rides in selected classics from their collection. Inside the museum you can mingle quite closely to all the vehicles on display. Some of the cars you will be allowed to climb into, and sit behind the wheel! Although they are temporarily closed due to the pandemic, check their website to see when they will return to normal operations. And after your visit, there is an In-N-Out Burger within walking distance on N. Sepulveda Blvd. <https://www.automobiledrivingmuseum.org/>

Enjoy this issue of The E31 News!

E31 Chapter News

E31 Chapter Photo Contest Winners – Sponsored by Gault BMW

It is with great pleasure that we announce the winners of the 2020 E31 Chapter Photo Contest. We received 67 outstanding photographs from 16 persons. In addition to North American entries, we received several from around the world. Judging was done by five judges consisting of regional BMWCCA Vice Presidents, the BMWCCA Executive Director, and Mr. Dave Belknap, from our sponsor, Gault BMW.

Special note: For copyrighted materials, please refrain from distributing the photographs without the consent of the owners.

Without further adieu, here are the winners of the 2020 BMWCCA E31 Chapter Photo Contest!

First Place

Randy Muecke

Photograph © by Steve Thornton



Other Photo Contest Entries...



Second Place

Alexander Murphy



Additional Photo Contest Entries...



Third Place

NOTE: There was a 3 way tie for 3rd Place. In alphabetical order they are:

Tie – 3rd Place

Aaron Phinney



Additional Photo Contest Entries...



Tie – 3rd Place

Thurston Pope



Additional Photo Contest Entries...



Tie – 3rd Place

Wayne Willoughby



Additional Photo Contest entries...



Best International Entry

Fabiano Moro
Rosate, Italy



Additional Photo Contest Entries...





Close Kin

Editor's Note: This article was originally published in the January 2021 ROUNDEL

**THE BMW 850CSi AND
FERRARI 550 MARANELLO
PROVE THAT BAVARIA AND
ITALY LIE VERY CLOSE
TOGETHER.**

Story by Roger Wray

BMW Photographs by
Michael Barrett

Ferrari Photographs by
Kent Williams

When it comes to beautiful GT cars of the 1990s, there were many available options; from the Porsche 928 to the Acura NSX, the '90s offered a wide and varied stable. But none of the lot could stand above the beauty offered by the top-of-the-line BMW 850CSi and the Ferrari 550 Maranello. Some might say that the BMW is not in the same league as the Ferrari, but when retrospectively viewed and compared, the two models offer several similarities. For quite some time the BMW 850CSi languished behind the Ferrari in value, but with recent sales and auction results, 850CSi prices are now equivalent to those of the Ferrari 550 Maranello. So let's go back and compare the two cars, and get owners' perspectives for these beautiful classic Grand Tourers.

BMW 850CSi

Development of the BMW 8 Series began in July 1981 as the replacement for the 6 Series, with both completion and production development starting in 1986. The 8 Series debuted at the Frankfurt Motor Show (IAA) in September 1989. BMW used computer-aided design (CAD) tools, still unusual at the time, the final design phase reaching to design the car's all-new body structure; more than 1,500,000,000 Deutschmarks were spent on its development—nearly 900,000,000 in today's U.S. dollars.





The top-of-the-range variant of the BMW E31 8 Series, the 850CSi was manufactured from 1992 to 1996, and featured a front-mounted engine, a six-speed manual transmission, and rear-wheel drive with a 2.93:1 limited-slip differential. The CAD



unibody design, combined with wind-tunnel testing, resulted in a drag coefficient of 0.31 (up from 0.29 for the regular 850i due to the increased front-cross-section design of the front spoiler and wider tires).

The 850CSi was tuned by BMW's M division. Aside from sporting an M-tuned engine (identified by the S prefix instead of the M prefix that a non-M engine would bear), the car's Vehicle Identification Number identifies it with a WBS prefix as being built by BMW Motorsport instead of BMW AG (WBA prefix). Per BMW's own protocol, the 850CSi as marketed was essentially a de-tuned version of the one-off M8 prototype.

The 850CSi's modified suspension included stiffer springs and dampers, resulting in a reduced ride height compared to the 850i. The steering featured recirculating-ball steering, with a revised ratio decreased 15% over the standard E31 setup. The front suspension employed a strut design, and the rear suspension featured a multi-link rear axle, with front and rear anti-roll bars standard. In Europe, the 850CSi featured four-wheel steering AHK: Aktive Hinterachs-Kinematik, or active rear-axle kinematics), updated ventilated front and rear

325-mm (12.8") disc brakes—with floating discs in the front—a differential-oil cooler, an engine-oil cooler, sport seats, and reshaped mirrors.

Designed by Klaus Kapitzka, the E31 8 Series is one of the most beautiful BMWs ever produced. With its sloping hoodline, pop-up headlights, no B-pillar, and wide rear flanks, it represented the pinnacle of 1990s BMW automotive design. The 5.6-liter S70B56 V12 engine in the 850CSi was manufactured and produced by BMW Motorsport GmbH, and today remains one of the lowest-volume power plants ever produced by the M division. The naturally aspirated V12 has two valves per cylinder and single overhead camshafts; displacement is 5,576 cc (340.3 cubic inches) and produced 381 horsepower at 5,300 rpm, with 406 pound-feet of torque at 4,000. Bore and stroke measure 86 mm and 80 mm. The BMW 8 Series offered the first V12 engine mated to a six-speed manual transmission on a road car. It was one of the first vehicles to be fitted with an electronic drive-by-wire throttle,

and was one of BMW's first models, together with the Z1, to use a multi-link rear axle. At the top of the line, a total of 1,510 850CSi's were produced, with 225 designated for the North American market.

Mike and Linda Barrett of Harrisburg, Pennsylvania, are the proud owners of a 1994 Hellrot (red) 850CSi, which they purchased in 2018. According to Mike, his is one of only nine in the world produced in this color combination, and one of only three like it imported to the USA. "Although I'm the fourth owner," he says, "I'm friends with the first owner, and first saw this car when it was new. The fact that I felt like I 'knew' this car





was a big part of my willingness to buy it from a seller 3,000 miles away.” Barrett has made minimal changes, using either original BMW parts, easily reversible modifications, or both, including a BMW three-spoke sport steering wheel and a Strong-Strut strut brace.

Barrett says that E31s always attract attention, and the 850CSi even more so. “On my trip home from buying the car,” he recalls, “as I was driving through Cincinnati, I sensed that there was a car to my left that was pacing me. I looked over and saw

that the driver was holding up a piece of paper on which he had written ‘CSI—YEAH!’” Asked to explain how he enjoys driving his CSi, Barrett replies, “I enjoy the styling, and the sheer pleasure derived from driving it. Despite owning another E31 for over twenty years, I never tire of driving it or fail to get a big smile on my face when I do. I also have to admit that part of me likes the attention it draws. For example, I was driving on the highway recently when a driver pulled up next to me and was jumping around in his seat and gesturing wildly. My first thought was, ‘Why is he mad at me?’—but then I realized that he was just excited about seeing my car!”

FERRARI 500 MARANELLO

In 1973, the front-engine Ferrari 365 GTB/4 Daytona ceased production, and was replaced by the mid-engined Berlinetta Boxer, followed by the Testarossa; its last evolution was the 1994 F512 M. Under the leadership of Ferrari president Luca Cordero di Montezemolo, development began on the F512 M’s replacement: The design was to be developed as a traditional front-engine V12 grand-tourer. This ultimately led to the development of the Ferrari 550 Maranello, which marked Ferrari’s return to a front-engine, rear-wheel-drive layout for its two-seater twelve-cylinder model after a 23-year hiatus since production of the 365 GTB/4.

Following 30 months of development, the Ferrari 550 Maranello was unveiled in July 1996 at the Nürburgring racing circuit in Germany. The model’s name referred to the 5.5-liter engine displacement and to the town of Maranello, home to the Ferrari headquarters and factory. Pininfarina designed both the exterior and interior of the 550. The 550 Maranello featured a front-engine, rear-wheel-drive transaxle layout, with the six-speed gearbox located at the rear axle in combination with a 3.91:1 limited-slip differential. The chassis was a tubular steel spaceframe covered by aluminum body panels. The Pininfarina-

designed body had a drag coefficient of 0.33. Both front and rear suspensions consisted of double wishbones with coaxial

coil springs and damper units. Front and rear anti-roll bars were standard. Rack-and-pinion steering featured variable power assist. The vented disc brakes were 330 mm (13.0") at the front and 310 mm (12.2") at the rear. Electronic driver assistance included anti-slip control, which could be adjusted on two levels or switched off completely. Brakes included a four-way anti-lock braking system. Frame and main engine components were shared with the Ferrari 456, although at 2,500 mm (98.4"), the 550's wheelbase was 100 mm (3.9") shorter. The engine is a naturally aspirated 65-degree V12 with four valves per cylinder, dual overhead cams, and a variable-length intake manifold. It displaced 5,473.91 cc (334.0 cubic inches) and produced 478 horsepower at 7,000 rpm and 419 pound-feet of torque at 5,000. Bore and stroke measure 88 mm and 75 mm respectively. In 2000, Ferrari introduced the 550 Barchetta Pininfarina, a limited-production roadster version of the 550; just 448 examples were produced. A total of 3,083 Ferrari 550



Maranellos were produced; in 2002, the 550 Maranello was replaced by the upgraded 575M Maranello.

David Andersen and Tony Buda of Omaha, Nebraska, are the proud owners of this Nero Daytona Black 2000 Ferrari 550 Maranello with Cuoio Interior. They bought this particular 550 in 2017 after looking at six or seven different cars. According to Andersen, it was in great condition, had been driven a reasonable amount and well maintained, and had some desirable options and a good color combination. What he likes best about the 550 is the sound—"Nothing sounds like a Ferrari V12!" he says—and just the way it feels on the road: "Driving it is such a privilege." He adds that the only major modifications to this 550 include a partial (cat-back)



Fiammenghi Engineering exhaust system and Hamann PG3 nineteen-inch wheels. "I enjoy taking it out for weekend drives on some good twisty roads near where I live," says Anderson. "Just getting in and starting up the 550 is a sensory experience, energizing all one's senses with its incredible sounds, smells, and how it feels on the road with its endless torque. And damn, does it look fine—especially the view from the driver's



seat! It is a road shark, a predator ready to overtake anything else on the road.”

Many classic-car enthusiasts view cars from this era as some of the most beautiful ever produced. Some feel that these were times before an increase in regulations that impacted designers’ ability to make beautifully sculptured automobiles. Front-engine V12 coupes have always been limited in number, and the Ferrari 550 Maranello and BMW’s 850CSi arguably led their segments with these limited-production V12 GT Cars.

Although born of Italian and German parents, the Ferrari 550 Maranello and BMW 850CSi are more similar than one might initially think or would want to admit; perhaps the thing they have most in common is that, as Bruce Springsteen put it, “Baby, they were born to run!”

	BMW 850CSI	FERRARI 550 MARANELLO
DESIGNER	Klaus Kapitz at BMW	Lorenzo Ramaciotti at Pininfarina
PRODUCTION NUMBER	1,510	3,083
YEARS PRODUCED	1992–1996	1996–2002
BODY STYLE/CLASS	Two-door coupe Grand Tourer	Two-door Berlinetta Grand Tourer
LAYOUT	Front engine, rear-wheel drive	Front engine, rear-wheel drive
ENGINE	5.6-liter S70856 V12	5.5-liter Tipo F133A/C V12
CAMSHAFTS	SOHC	DOHC
DISPLACEMENT	5,576 cc (340.3 cu in)	5,473.91 cc (334.0 cu in)
POWER	375 hp at 5,300 rpm	478 hp at 7,000 rpm
TORQUE	406 pound-feet at 4,000 rpm	419 pound-feet at 5,000 rpm
TRANSMISSION	Six-speed manual	Six-speed manual
WHEELBASE	2,685 mm (105.7")	2,500 mm (98.4")
LENGTH	4,780 mm (188")	4,550 mm (179.1")
WIDTH	1,854 mm (73.0")	1,935 mm (76.2")
HEIGHT	1,330 mm (52.4")	1,277 mm (50.3")
CURB WEIGHT	4,090 pounds	3,912 pounds
DRAG COEFFICIENT	0.31	0.33
0 TO 60 MPH	5.3 seconds*	4.2 seconds**
0 TO 100 MPH	13.5 seconds*	9.6 seconds**
¼ MILE	13.9 seconds*	12.5 seconds**
TOP SPEED	158 mph (governor limited)	199 mph
	* Car & Driver, 1994	** Motor Trend, 2000

E31 Converted: The Tesla-Electric Powered BMW 8 Series

By *Patty McGrath*
Courtesy: *SPEEDHUNTERS*



As car enthusiasts, we're at a crossroads. Right now, governments and legislators are doing their utmost to make our lives more difficult. They're introducing stricter road traffic laws with increased surveillance and revenue collection measures, along with forcing manufacturers to abide by tighter emissions standards. Quite simply, the future doesn't seem all that bright for us.

Despite our passion for cars, we're actually a very small community in the grand scale of things. While almost everyone drives these days, only the smallest percentage of us don't see our cars as just an appliance to take us from A to B. We take pride in our cars, and the art of driving actually means something. An aimless drive with no destination in mind might not make any sense to your typical commuter, but we all know that these are often the best kind of outings.



For all of this, we've never been more fractured as a group. Instead of being just car enthusiasts, we've divided and subdivided ourselves again and again until we have found our niche. This is evident even within the BMW community itself, where some people prefer to immerse themselves in retro models like the 2002 and E30, with others want to be at the fore of performance

technology with the latest M3 and M4. Despite being 'united' under the same marque and loving the same roundel, neither of these groups actually share that much interest in each other.



There is perhaps one area of current car culture that does unite a lot of us, and that's our apprehension towards an electric future. The general consensus is that when you remove the internal combustion engine, you remove a car's soul.

It probably doesn't help that the current crop of EVs on sale today feel like they share more in common with smartphones than the petrol and diesel-powered cars that preceded them. They're the pinnacle of current automotive technologies, but they still leave us cold. I mean, who amongst us has ever truly fallen in love with their iPhone?

I think that some of our feelings towards electric cars are based on a lack of understanding. Instead of the fascinating and noise-making mechanical processes inside a traditional engine, there's the comparatively sterile world of logic boards, processors, software and batteries operating silently and invisibly instead. Also, as with any piece of technology, we expect that there's always a better one coming soon, so we never invest ourselves wholly into them.



I guess that when we think 'electric cars' we think of people in white coats in a lab somewhere with white walls, white ceilings and white floors.



What we certainly don't think of are rural villages on the south-east coast of Ireland, where Damien Maguire has been quietly converting BMWs to electric in his spare time for well over a decade.



The Tesla-powered 1996 E31 8 Series you're looking at now isn't Damien's first foray into the world of EV conversions. An electrical

engineer by trade, he has converted six other BMWs to electric power in recent years.

There's no laboratory here either; Damien carried out all of these conversions between his driveway and garage at the side of his house, including Project Land Yacht, a 2001 E39 which he has covered over 100,000 electric miles (and counting) in.



The moment you meet Damien, you know that he isn't doing these conversions for shock value (pardon the pun), but rather out of genuine enthusiasm and passion for building these cars.

There's not an unlimited budget behind the projects, with Damien telling me that his biggest challenge is often a lack of resources.



But it's these deficiencies in finances, something which we can mostly all relate to, that have forced Damien to get creative when needing to figure out solutions to problems which others might just throw money at until they go away.

Affectionately known as 'Der Panzer', this E31 has been a long-term goal of Damien's. He distinctly remembers a Dinan E31 featuring on the cover of *BMW Car* magazine in the mid-1990s – around the same time that 'Der Panzer' would have rolled off the production line – and being captivated by it.



In 2014, Damien found the right E31. Following a train journey to Newry in Northern Ireland, he paid the lowly sum of £2,000 for what he describes as a “pretty rough” 1996 840Ci. It might have been a bottom-of-the-market example, but it still made the journey back to his home in Wexford, albeit after consuming some €82 in petrol courtesy of its woeful 14mpg fuel consumption.



a ZF automatic gearbox with a custom shift controller and Renault Fluence battery packs. This was the first of five electric iterations of this car, which came to an end when an incorrect software parameter saw the motor rev to 9,000rpm, ejecting the torque converter through the bell housing.



The ZF automatic was replaced with a Getrag 5-speed manual gearbox which fared much better from an efficiency perspective, but that too exited this world in style, with the layshaft coming through the gearbox casing following an attempted J-turn manoeuvre. Version 3 saw the introduction of a 6-speed ZF manual which happily turned out to be J-turn proof, and the car ran happily for about a year.

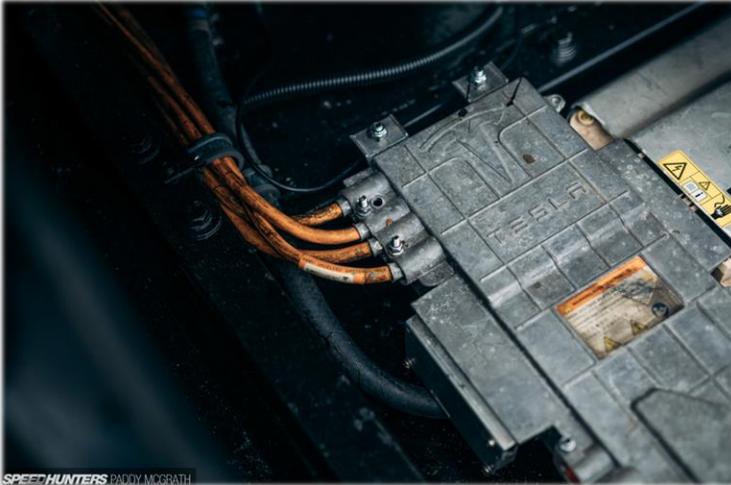


It was always Damien’s intention to convert the 8 Series, and not long after arriving home he had removed the 4.4-litre M62B44. In its place went a Siemens 1PV5135 electric motor connected to



It was around this time that Damien acquired a Tesla Model S drive unit and things took a really interesting turn. The Tesla drive unit is an all-in-one package featuring the motor, inverter and differential, but is very much a 'closed shop' when it comes to communicating with non-Tesla control systems.

There were one or two aftermarket solutions available, but these came at a huge cost, so Damien went ahead and designed his own custom logic board with an open source motor control system. There's now over 200 of these logic board units in action around the world, but the first hand-soldered example still lives in Damien's E31.



Getting the Tesla drive unit to communicate with a non-Tesla control system was one of the biggest challenges Damien faced. While he was able to take care of the hardware, he relied on the community at *OpenInverter.org* to assist with the software side. With the Tesla drive unit now under control, the next challenge was a more traditional 'engine swap' one – making the whole Tesla unit fit in the E31.

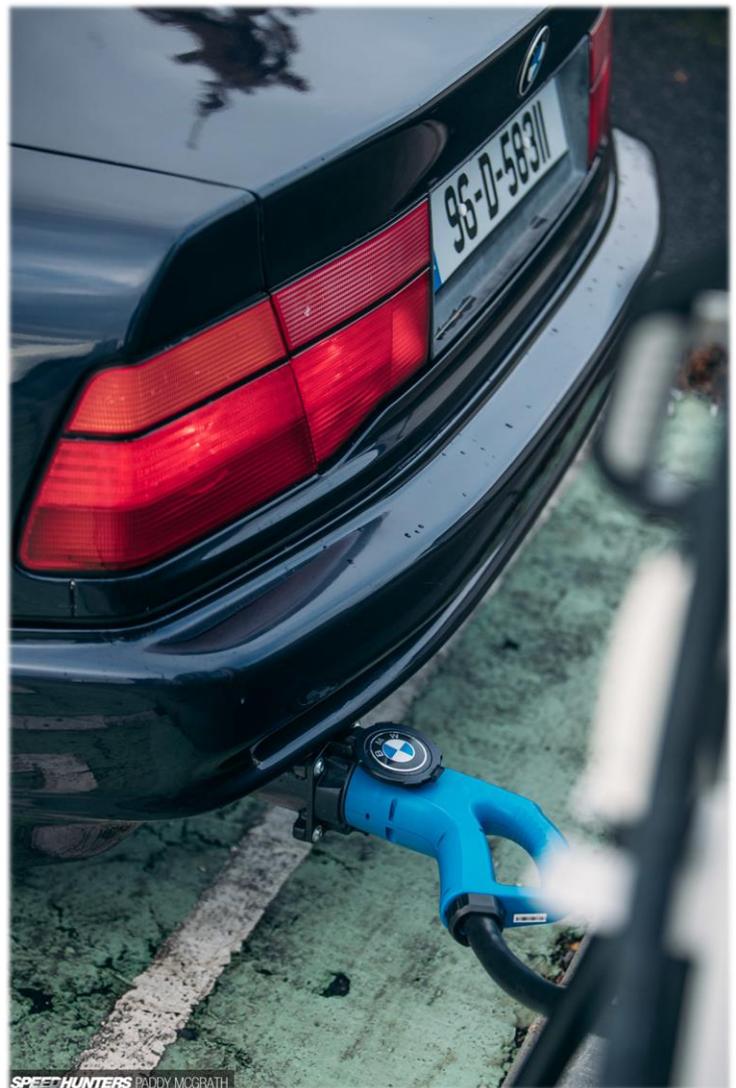


For this, Damien turned to a friend and fellow BMW enthusiast Dave Gormley to design and fabricate a custom rear subframe and suspension system around the Tesla unit. With limited space, the original E31 multi-link was replaced with an adapted E34 semi-trailing arm setup. The added weight at the rear of the vehicle required a custom coilover pairing, but at over £2,500 these provided a considerable roadblock for the project. However, luck would have it that GAZ had built a set of the exact same specification coilovers for another customer, but they were never

paid for or collected, so Damien was able to pick them up at a heavily-discounted price.



The next pieces of this new puzzle were the 16kWh batteries from a hybrid 2013 Vauxhall Ampera which were fitted at the front of the vehicle. They currently only offer around 80km (50mi) of range, but supply enough power to make the most of the Tesla drive unit, propelling the BMW from standstill to 60mph in around 3.4-seconds.





SPEED HUNTERS PADDY MCGRATH

the organizers even provided the required three-phase electrical supply for him to charge the car between sessions.

Unfortunately, this is where version 4 comes to an end. A simple over-correction led to the E31 hitting a bank on the outside of the track. While the damage was mostly cosmetic, and the car was still relatively rough around the edges, it inspired two thoughts in Damien's mind: The first was that he should build a dedicated electric track car; the second was that it was time to bring 'Der Panzer' up to spec. Which is where we are today, with the fifth and most current EV evolution of the car.



SPEED HUNTERS PADDY MCGRATH



SPEED HUNTERS PADDY MCGRATH

If you know one thing about electric cars, it's likely their incredible levels of torque and their ability to essentially deliver it all from the first RPM if required, without lag. The Tesla unit is capable of 1,500Nm (1,106lb-ft), so Dave and Damien chose off-the-shelf E34 540i driveshafts for ease of replacement should the time come.



SPEED HUNTERS PADDY MCGRATH



SPEED HUNTERS PADDY MCGRATH

With this new setup completed and running, Damien made plans for his first track day in the electrified 8 Series. Although he was weary in advance of the day, fearing animosity towards the project from other track day goers, his concerns proved to be unfounded. He was welcomed by an enthusiastic group at Mondello Park, and



SPEED HUNTERS PADDY MCGRATH

There is something disconcerting about watching the immaculate E31 move away silently under its own power, but it's something you quickly get used to and appreciate the novelty of. The car's ability to vanish up the road in relative silence never gets old either. If you didn't know otherwise, there aren't many tell-tale signs that the 8 Series is electric when at a stand still. Even the shifter which controls the Tesla unit is from an E60 M5, which although odd, is still a BMW part. The interior is standard asides from two small toggle switches.



The largest giveaway is the recently added CHAdeMO fast charging port which resides where the passenger side exhaust tip once lived. This is in addition to the slower Tesla 10kW charging port which hides behind the factory fuel filler cap. If you get down on your knees and look under the rear, it is difficult to miss the Tesla unit, providing you know what it is in the first place.

If you know two things about EVs, the second is likely to be their heavy weight. Even the sleek Tesla Model S saloon can weigh over 2,200kg (4,850lb) depending on its configuration.



The E31 was never lightweight itself, with Damien's weighing 1,905kg (4,200lb) pre-conversion. But with clever componentry choices, the car has shed 195kg (430lb) and now sits at 1,710kg (3,770lb).

It has experienced a power bump, too. The original M62B44 engine produced around 282hp, but Tesla unit is another 110hp

up on this, and has the extra benefits of huge torque and instant power delivery.

Since the first electric conversion with the Siemens motor, the 8 Series has covered around 26,000 miles under pure battery power, with around 6,000 of these being with the Tesla drive unit. The car will come off the road again shortly for its next evolution, with the plan to add a significant amount of range to the car with larger battery packs so Damien can drive from Ireland to Munich in 2021.



Despite everything he has achieved with the car – being the only Tesla powered E31 in the world, and the first car in the world to use a Tesla drive unit with a custom control system – Damien remains remarkably humble about the whole thing, while still exhibiting a huge level of passion for the project and the desire to continue to improve it.

"It's not a big-budget build; I even felt nervous bringing it to the Fully Charged show in Silverstone this year, but people were really interested in it," he told me.



When I asked Damien if there was any advice he would give to others who are also interested in going electric, he said this: *"This is all stuff that you can do in your shed or at home as safely as wiring a plug or working on a high pressure fuel system. You still get your hands dirty. They're still cars."*



It was that last bit that struck me as being particularly poignant. We've spent so much time over the years dividing ourselves as automotive enthusiasts based on our different tastes, when we should have been focusing on what we all have in common instead. Damien, and others like him, have simply found another way to enjoy cars.



Besides, since when is removing nearly 200kg (441lb) and adding over 100hp and nearly 80lb-ft of torque a bad thing anyway?

Paddy McGrath

Editor's Note: I have been following this series on Youtube. Damien Maguire has chronicled his complete process and transformation, step by step. To watch him work in his driveway or garage, in cold and damp conditions is really inspiring. If you are interested in watching the series, check it out on Youtube. Grab a cup of coffee, or better yet, an entire pot, get a bag of your favorite munchies, and spend some time watching the transformation of "Der Panzer". Here it the link to Der Panzer Youtube video #1 (of over 100 videos): <https://www.youtube.com/watch?v=56RUGSIz6Y8> Enjoy!

E31 Luggage – When a Triangle is a Good Thing!

By Henry Christoff

Photos by Blaz Solar

BMW ACCESSORY: E31 Luggage & Golf Set

BMW PART NUMBER 82229419263

During the 8 Series E31 production run, BMW offered several E31 specific accessories. You could get a 4-spoke M-Technic steering wheel/air bag set as fitted to the North American CSI cars, trunk floor cargo net (apparently still available from BMW as part number 51472253806), cross-spoke composite 17" Style 5 wheels (now no longer available), all weather rubber floor mats (also no longer available), a set of mud-flaps and the rare E31 custom luggage and golf set, BMW part number 82229419263.

BMW's 82229419263 accessory set consists of one golf bag (which holds a full set of 14 clubs), one ultra light caddy trolley and two large capacity triangular luggage cases with convenient carrying handles. One bag is for carrying and storage of the collapsible caddy trolley, the other for a weekend wardrobe and travel accoutrements. Both the golf bag and luggage cases have discrete BMW cloisonné roundels attached. Also included with the set is an eleven page assembly instruction booklet in eight languages: German, Dutch, English, French, Italian, Spanish, Swedish and Japanese.



No longer available from BMW for many years, this golf/luggage accessory has been known to change hands between E31 automobilia collectors privately or sometimes sold on the popular eBay auction site. My introduction to E31 custom luggage was reading the December, 2005 issue of (now defunct) Bimmer Magazine. The article nicely written by Mike Miller with photography by Klaus Schnitzer and titled, "Fanfare for the Common 8 Series", featured a slightly modified 850i with 6-speed gearbox, sport seats and 17" style 5 wheels. Prominently shown in photographs were two sets of custom E31 luggage. Unfortunately, there was no mention of the golf bag and collapsible golf bag trolley, but said the "custom luggage eases storage woes in the coupe's trunk".



The BMW golf bag is thoughtfully designed with two pockets: a top pocket can accommodate balls, gloves, wallet or small purse; the lower zippered pocket offers space for a drink bottle or additional item of clothing. There are holders on the outside of the bag for tees and mountings for an umbrella. According to the instruction booklet, "the BMW golf bag set has been designed to satisfy the needs of the mobile golfer and in particular to match the luggage compartment dimensions of the BMW 8 Series models". Well, then.....problem solved!

Many thanks to Blaz Solar of Amsterdam, Netherlands for providing the excellent photos that accompany this article.

E31 The 13th German "Stammtisch im Schwabenland"

By Daniel Wäschle

The 13th "Stammtisch im Schwabenland"

On October 25th started like a great day to take one last ride. There were 6 8s and one 8-person Hummer and it started. The weather was great.

At around 10.15 a.m., the first ones arrived at the Schönbuch service station, where we left in line for our journey to the bathhouse in Rottweil. We arrived at 11:15.



After a little smalltalk, we went to the restaurant where a lecture about the Neckartal Industrial Park, a historic location with an important past regarding the creation of the bath houses began around 11:30.



It's corona time, there are regulations in the restaurants. so only a few guests were present.

The lecture told of the Neckar valley in its origins in the 17th century. Gunpowder was made in simple powder mills. At the end of the 18th, Mr. Duttenhofer, the son of a pharmacist, invented the smoke-free gunpowder. A mill produced gunpowder for useage worldwide. This was the basis for modern guns. (Manufacturers such as Mauser and Heckler & Koch are still located nearby today) Gunpowder making was not very healthy for the workers. Often a powder mill exploded, causing many

deaths and injuries. The health of the workers, mostly women, was very harmful due to the powder dust. This was the first time that a facility for improving the hygiene of workers was created.

The bath house was a facility where the workers could wash, shower and bathe at strictly defined times. A dormitory was also set up on the upper floor. At that time, many workers ran several 10 km into the Neckar valley to work. With the usual working hours of up to 2pm at the time, it was not possible to walk home. The bathhouses were built in 1875. After the lecture, we were able to tour the original bathrooms from that time.



After the tour bathhouse tour, we enjoyed lunch.



After dinner at 2 p.m. we meet in the parking lot where we found interested people who looked at and admired our 8-person Hummer. Other pieces of jewelry were also on display in the parking lot.



Then we drove to the museum. After a nice trip across the country we arrived in Dietingen, at the museum "World of Crystals". Then there was a first a group photo ...



The corona version



Normal version It's not allowed. In Germany everyone must pay 250€ for penalty.

Armed with masks we went to the museum where we were dazzled by all the exhibits. It is impressive what beauties there are besides our 8 cars, and our ladies!

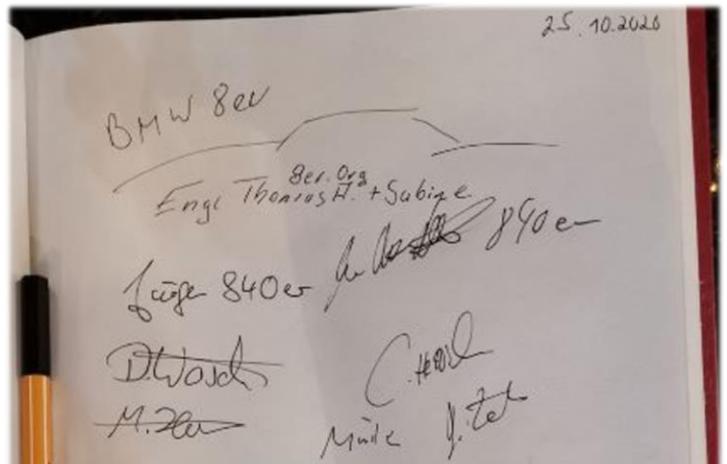


A 20min video documentation gave us an insight into the prospecting areas in Brazil. The mines are simple caves where people use the simplest means to find the gems, compared to the cobalt mines in which the raw materials (cobalt) for the electric cars are mined.

Well done... That's just how it is ... The special thing about this museum is: The owner, who financed everything privately, has salvaged the exhibits with the prospectors and organized the transport to Germany. A unique museum, that is probably unique in Europe. At the exit of the museum, visitors were able to pick out stones from a basket and buy them. The stones were then opened together and everyone could admire the beauty of the stones.



Because it was so beautiful, there was an entry in the guest book.





When everyone had finished admiring the stones we drove a short trip to the "forest tavern" in Schömborg to end the day ...

It was nice to be able to end the 2020 season together. The Corona virus doesn't make it easy for us. A great day ended and everyone drove home. The home way took over an hour with good weather, and we enjoyed our final drive of 2020.

According to the motto "after the 8th meeting is before the 8th meeting" we are waiting for the year 2021.



E31 BMW E31 Club Italia Finishes 2020 with Meetings



Unfortunately, due to the COVID health emergency, the BMW E31 Club Italia Third National E31 Rally scheduled for May 2020, which had many attending from other countries, was moved to May 2021 with the same passion and determination. To close the year with the pleasure of meeting members, local gatherings were held in three Italian macro areas: North West, North East and Center - Rome, with the intent of sending each member back to next year's 2021 national meeting.



One of these regional meetings took place in the north-west area, in the town of Voghera. Eleven E31's owned by passionate club members gathered, who after the Lockdown wanted to meet to parade with their 8s. The meeting gave us the opportunity to

visit the garage of an enthusiast who owns about 30 historic cars, from the early 1900s including 2 Bugattis, which participated in the 1000 miles, and German cars including a BMW E21 and Mercedes pagoda.



English and American cars could not be missed. In short, the owner was a true enthusiast of the genre. The owner and the owner of a farmhouse located right next to his estate, allowed us to park and enjoy a wonderful lunch, much to the Lombard delights.



These were opportunities to allow us to enjoy our E31 travels on Italian motorways! The meetings adjourned, and everyone is looking forward to our BMW E31Club Italia National Rally, scheduled for May 2021.

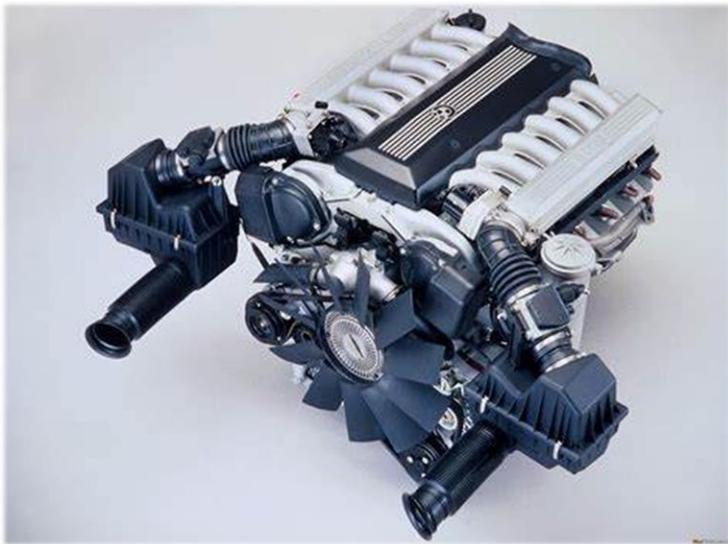
Ciao!



E31 Air Mass Meters - Explained

By Johannes Zahn
Courtesy @ of www.e31-world.de

The V12 engine in the 8-series is structurally divided into 2 benches with 6 cylinders each. We have seen in direction on the right bank Zyl. 1-6 and on the left bench cylinder 7-12. Each bank has a separate control circuit, its own engine control unit (DME), its own speed sensor, its own throttle valve and its own air mass meter. Thus, each module and sensor is required twice. The power, in turn, is combined via the common crankshaft and transmitted to the drive train/gearbox.



The air mass meters of all three V12 engines M70, S70 and M73 installed in the 8 Series are from the manufacturer Bosch. They are very expensive sensors, which are already very accurate ex works. The LMM of the M70 and S70 motors have an integrated platinum wire which is heated to 100°C during operation. The air flowing past cools the wire, it is reheated and the energy required for the reheating defines the converted air mass measured with this sensor. This is a greatly simplified and schematic representation of the operating principle of the Bosch brand, which was also protected by patents at the time.

Replica products, structure, accuracy and external features

Until now, it was only about the original Bosch air mass meters. Now we come to the replicas from China or wherever they come with the most diverse names that are labeled there, however these "things" are named then...

In total, I measured 3 pieces of these replicas against a Bosch reference part and looked at the externally visible details.

I noticed:

- these replicas do not have a platinum wire

- furthermore, the cleaning and free-burning function is apparently not available

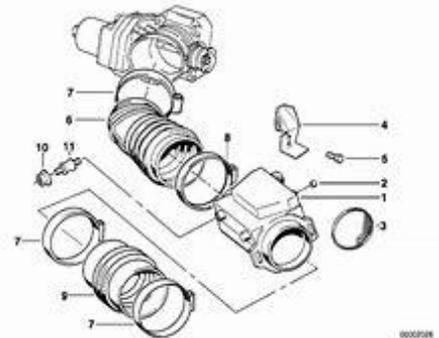
- these are also not dimensionally clean, have a flange diameter between 69 and 69.5mm swaying, the Bosch LMM have exactly 70mm. However, the housing has a stable effect and does not have the otherwise often existing burrs on the plastic as it is known from low-cost products.

- In terms of measurement, the replicas are well outside the tolerance, the 3 test parts all scattered upwards (as opposed to the used Bosch parts), i.e. too much fuel is injected, especially in the higher load range. This also explains the description of some users here in the forum that a "rush" of the engine was recognizable.

- I also noticed that the replicas tend to produce short-term signal rashes (peaks) when the load changes (i.e. when the accelerator pedal position is changed), which in any case does not belong there and has not made any of the Bosch parts.

Deviations of old / defective Bosch used parts over new parts as replicas

The deviations of the replicas here are about 3 x as high as the deviation of the worst air mass meter from Ebay that I measured. At this point, however, after this realization, it is not possible to come to the replicas, since it is still much better to hope for a still good used part.



It should also be mentioned, one can quite come across a "pearl" among the used ones, one of the old used parts from Ebay looked really bad, was heavily dirty and dirty, the housing had a jump on the outside, it came from an old E32 and looked like a mileage of 200 – 400,000km.

The surprise came, however, at the trade fair, the LMM had brilliant values with a deviation of only 15mV, which corresponds to a brand new LMM from Bosch.

Why there are such big differences here is still a mystery to me.

But finally, a few general findings:

The fly screen costs performance!

The air flow is reduced by almost 3% due to these installed grids, which corresponds roughly to the power loss of 8 hp on the M70. However, these should not be removed prematurely, they serve, as far as I know, after smoothing the airflow. Nevertheless, it would be interesting to drive a comparative measurement on the dynamometer.

Cleaning the air mass meter is useless:

There are special cleaners on the market for air mass meters, which are supposed to free the platinum wire from dirt. You can save this money, you can spray a whole can on it at once, it changes absolutely NOTHING in the measurement result! Not even 1mV could be measured as a difference.

Also brake cleaner or compressed air or the combination of all the 3 methods is ineffective, I have tested it.

The platinum wire is brownish-dirty even after cleaning on the input side and beautifully bare on the outlet side.

The hymns of praise that you read in some forums are a placebo effect.



Turning the air mass meter causes deviations:

It is also interesting that if you operate the air mass meter in the opposite direction to the river direction, a deviation of approx. 120mV is to be measured. This is probably due to the bevel of the inner sleeve at the outlet, similar to how planes on the outside of the wings have the "winglets" to avoid swirling flows.

After free-burning, short-term deviating values:

And now to the last point (otherwise it will slowly become really too much to read), which I noticed what I found very interesting, the air mass meter shows after the free burning of the platinum wire for several minutes different values i.H.v. deviation 30-40mV deviation. I have not yet found an explanation for this, it must have something to do with the chemical behaviour of platinum.

However, it should be noted here: as you know, the free-burning is carried out after the engine has been switched off. Now one can imagine that if the motor is restarted immediately after shutdown, the engine does not run at optimal values.

Here is a photo of the free burning process of the platinum wire at 1000°C:



Air mass meter when free-burning - 8-series BMW E31

Considering that this issue is likely to become more important for us 8 drivers and also for the 8-member clubs in the coming years, it is worth looking at this topic further.

What are the causes of the wear of the air mass meters, or what can be done about it?

1.) If you look at the throttle valves, you can see that in the V12 so much of the oil vapours move back into the intake tract after the engine has been switched off. Is actually also logical, the air in the intake bridge, which at first still has the ambient temperature when the engine is switched off, heats up to the block temperature of approx. 95°C within a very short time. Due to the crankcase ventilation, oil mist is located in the intake bridge and due to the rise in temperature, the air incl. the oil vapours expands and pushes in the direction of the air filter and thus through the air mass meter.

If the throttle valves are dirty and no longer close cleanly more oil gets back into the suction area. As I said, this is a theory. Presumably it will be the smaller the gap in the throttle valves the more oil gets stuck there, or when passing the slot. The M70 in particular has problems with the throttle valves, which no longer drive precisely enough in old age and therefore no longer close reliably.

At this point, not to mention the K&N drivers, who create a bubbling oil source with their oiled filters, which certainly should not pass without a trace at the air mass meters.

2.) The second approach, the Dirk (to leave the well-deserved laurels in the right place) brought me on it: Defective air ducts and thus the suction of oil vapours from the engine compartment. I think this is also a very plausible approach, especially when you consider how many M70 engines are operated with oil smeared oil, because some oil vapours accumulate under the bonnet.

Why a defective air mass meter is often difficult to detect:

To the Bosch Motronic, which is supposed to detect the defective air mass meter:

The Motronic was without a doubt a great development that Bosch was driving forward at the time and successfully implementing. Certainly a great achievement for the conditions of the time, there is nothing critical to say. However, and this is also part of the truth, the Motronic also has some weaknesses.

The following example, which can also be understood by simple means: Motronic is happy to be advertised with the fact that it is able to check and evaluate plausibility of the signals, that may be true in some cases, in the case of the air mass meter this is certainly not the case.

Everyone can carry out a simple test with themselves: If you remove the plug of the air mass meter completely during operation and put it back on after a certain time, a replacement value is drawn and the bank continues to run, but the alleged "monitoring" does not even consider it necessary to make an error in the fault memory. According to the DME, the world is still in order, even if the signal had been completely lost for a while...

Would the Lambda integrator value displayed in the diagnostics be helpful?

Here I can think of 3 different states:

Case 1) Range full load, or $\geq 80\%$ throttle position:
Here nothing is monitored, the characteristic field is removed and exactly the amount of air processed by the air mass meter is emanating. If this is wrong, the mixture is also incorrect.

Case 2) Idle and partial load:
In theory yes, but only if it can be ensured that THERE is NO additional defect (see case 3) or this can be ruled out with absolute certainty.

Case 3) Several defects in combination (probably the most common case in older cars):

Just imagine that there are several "not optimal conditions" (defects) as is the case with almost every one of our old engines – with the partly 30-year-old components. Errors can be "measurably" offset against each other, although they exist, e.g. in the following case:

Assuming the engine has ignition failures, this means in the result of unburned fuel with too much residual oxygen (i.e. mixture too fat), but at the same time the air mass meter measures less air than actually flows (i.e. mixture too lean), so the symptoms cancel out messially on each other although both causes still exist and both errors in sum aggravate the matter. Not even the error of mixed deviation would come up in this case.

Another rather unfavourable case:
The same thing happens, for example, in case of even coarser ignition errors, if also here with saved error with the Lambda Integrator.

Let's take one of the 6 cylinders (a bench) does not ignite, which means that about 16% too much residual oxygen passes through unburned mixture at the lambda probe. The Motronic will now also further reduce the 5 remaining and still well running cylinders, so that in the end they will not run properly.

A "devil circle" the whole story, the reason for this is that only 1 lambda probe is available for all 6 cylinders together. If there were at least 2 lambda probes per bank, defects could be circled much better, regardless of errors in the intake tract such as the air mass meter.

So as an example:
Makes the cylinder 4 problems so could Zyl. 1-3 with 2 Lambda's against Zyl. 4-6 and at least Cyl. 1-3 could continue to run normally and would not be regulated with "broken".



Official 2021 E31 Chapter T-Shirts are Now On Sale

2021 brings a new year, and along with that, the E31 Chapter now has released the 2021 E31 Chapter T-shirt. Available in white in both short and long sleeve T-shirts, the new design features our official BMW CCA logo on the front, with the back featuring an outline of the E31 and models produced. Ordering will be available the middle of January, 2021. Pricing will be \$14.95 for M-XL, and 16.95 for XXL. Long sleeves will be \$17.95 for M-XL, and \$19.95 for XXL. A new year brings new swag! Order yours today! Check out the BMWCCA E31 Chapter Apparel store for ordering information: <https://bmwcca31.qbstores.com>



BMW E31 8 Series - Autobahn Legend
Dingolfing Germany

840Ci 4.0L V8
840Ci 4.4L V8
850Ci 5.0L V12
850Ci 5.4L V12
850CSI 5.6L V12

BMW Car Club
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E31 Chapter



BMWCCA E31 Chapter has teamed up with the team at Queensboro Apparel so members may purchase E31 Apparel. Ordering is easy. Simply choose the item you want in what color you wish and place the order. The great people at Queensboro will fill the order, and ship it to you. It is that easy!



Be sure to visit our Chapter Apparel Website:

<https://bmwcca31.qbstores.com>
for chapter apparel.

<https://bmwcca31.qbstores.com>

*By Roger Wray
Editor, E31 NEWS*



“Damn the torpedoes – Full Speed Ahead”. I am sure many of us feel this way as we approach the new year. What a year 2020 has been for many of us. What a roller coaster ride we have had. We all have examples of how 2020 impacted us, including the loss of some of family, friends, and loved ones. Let us hope in the future we can look back at the experience in our rear view mirrors as we drive down the highway of life and say it is behind us now.

In this edition, you will find the winners of the E31 Chapter Photo Contest. We received many excellent photographs from around the world. Sixteen people submitted 67 outstanding photographs. Congratulations to all who took the time to submit pictures, and a big congratulations to our winners. Additionally, a HUGE THANK YOU to Gault BMW for sponsoring our 2020 Photo Contest. In addition to our judges from the BMW CCA Board of Directors, Dave Belknap from Gault BMW was also a Judge. Thanks to all 5 judges who reviewed each and every photograph. I am glad that I did not have to be a judge!

2020 was a big transition year for our newsletter. Originally dedicated solely to our chapter, other worldwide E31 groups came onboard, and have driven the E31 NEWS to a true international newsletter. In an age of instant discussion and transmission of information, there seemed to be many who continue to want a newsletter – hence, the E31 NEWS has become *The International Voice of E31 Owners*. Thanks to everyone who has contributed, and please continue to do so.

If you are planning on putting on an event, send the information to Henry so it can be placed on the website. When it is over, send me some pictures and a write-up so I can include it in the E31 NEWS. This is your chance to be an international author! And, as always, please remember it is the cars that bring us together, but it's the people that make us who we are.

Please continue to be safe, and let's look forward to a happy and prosperous new year in 2021!

Roger

MORE SMILES PER HOUR.



**BMW Car Club
of America
E31 Chapter**



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