



The Rio Grande Redline



BMW CCA New Mexico Chapter

www.nmbmwcca.org

The Importance of Aerodynamics (A Look Into Making Cars Fly through the Air)

In the tough struggle for crucial seconds in Formula 1, aerodynamics play a fundamental role. The teams invest up to 20% of their total budget in the science of the winds, making their cars even faster with innovative aerodynamic designs. Meticulous precision work is undertaken down to the last millimeter, according to the motto: races are won in the wind tunnel and lost on the track.

A stroke of genius by Colin Chapman in 1972 showed the way ahead for Formula 1. The legendary designer and team boss equipped his Lotus 72 with a flat front end in the form of a closed wedge, and hid the bulky radiators in side panels. Thanks to these revolutionary aerodynamics, supported by a rear wing, Emerson Fittipaldi won the World Championship for Lotus.

The significance of aerodynamics can be seen primarily in the downforce. The search for greater downforce has become the driving factor behind entire Formula 1 teams. The shape of cars is grinded on the computer, in the wind tunnel and on the track, and the wings and wind deflectors are styled just as much as the diffuser on the rear underside of the car. The aim of this precision work is to channel the airflows perfectly and so generate as much downforce as possible, which presses the car down onto the road and permits shorter braking distances and higher cornering speeds. Experts estimate 80% of the car's grip is generated by the downforce and only 20% by the tyres.

But downforce is not everything: the recipe for true success is to find the best compromise between the greatest possible downforce and the lowest possible air resistance. There is no ideal set-up to suit every racetrack, so the true art of the designers is to get closer to the ideal than their competitors for every race. This is not an easy task, with 20 different possible settings for a rear wing and 100 possible settings for a front wing.

The aerodynamics are the most important factor in the design of a Formula 1 car. An air duct panel between the front wheel and the side panel, for instance, can add more speed than two or three extra horsepower. Only those teams with their own wind tunnel can keep up with the extremely fast development in this field. Engineers spend up to 15,000 hours every year at the wind tunnel, and each complex costs about 45 million euros.

Modern Formula 1 cars can withstand centrifugal forces of up to 4G without sliding off the track. The art of aerodynamics allows far higher cornering speeds than would be possible without downforce, and so not only ensures a better performance but also even more safety. As a rule of thumb, 35% of the total downforce is generated by the rear wing. However, as it also causes the greatest air resistance, it is the rear wing's setting that is changed most from race to race. For the Italian Grand Prix on the high-speed track in Monza with its long straights and fast corners, the teams use flat wings to gain the highest possible speeds. On city tracks like Monaco, or circuits with lots of narrow corners, wing elements with a steep setting help generate as much downforce as possible so the cars can drive through the corners faster. The front wings are responsible for 25% of the downforce – a value which can quickly be reduced to just 10% by air turbulence if the car is travelling directly behind another car. The remaining 40% of the downforce is provided by the diffuser on the vehicle underbody, a type of air accelerator whose tunnels and ducts lead the flowing air towards the rear so that it generates the strongest possible suction effect.

In contrast to Formula 1, passenger cars tend to create lift at medium and relatively high speeds, because of their shape. As this relieves the load on the axle and reduces the driving stability – and therefore also the safety – developers aim to keep the lift as low as possible by creating minimal air resistance. "This takes a lot of detailed work in the millimeter range. It ranges from smoothing down the underbody to optimizing the airflow through the wheels and even to working on integrated rear spoilers," explains Dr. Christoph Lauterwasser from the Allianz Center for Technology. "That is the only way to achieve drag co-efficient values under 0.30 while at the same time minimizing the lift on the rear axle. However, anyone travelling with a roof box or a bike carrier will completely undermine all that meticulous development work."

In Formula 1, too, aerodynamics will always remain one of the most important factors in spite of all the changes to the regulations. The developers are a long way from exhausting all the possible options, so in the future, losing a hundredth of a second will still be a real drag.

As seen at: <http://www.fltechnical.net/articles/3893>

UNDER THE HOOD

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Remember to check our web site for periodic updates: www.nmbmwcca.org

President's Message

by Jon van Arsdel
Oct 2007

It is now October, and fall has arrived. This is arguably the most pleasant time of the year here in New México. The temperatures are moderate, the leaves on the trees are beginning to change color, and the breezes are light. What a wonderful time for reflection on life in general! Perhaps this is the right time to wax your BMW for the upcoming winter.

Speaking of fall, BMW Oktoberfest will be in Fort Worth, Texas from September 30 to October 5 this year.

This past quarter, we had the annual Porsche/BMW Challenge, a great tech session at Santa Fé BMW, and a membership meeting.

The 13th Annual BMW/Porsche Event was held Saturday, July 28th. It was at Sandía Motorsports track. I am told we had a small but enthusiastic group of attendees. I was unable to attend due to a family emergency.

The Santa Fé BMW tech session was Saturday, August 25th. This tech session was postponed from June, due to construction at the dealership. As usual, Service Manager Andy Caperones put together a superb event. We all learned about the new line of BMW performance parts; I am told my X3 will now win the race against a normal city bus. We also learned about the new BMW diagnostic systems coming in the near future. Several classic BMW's were on static display, for members to envy. Chapter Vice-President Bob Kauffman arranged a great lunch for all of us; those on a diet need not apply.

Upcoming events include the Fall Tour and two tech sessions.

The Annual Karl Fox Memorial Fall Tour will be Sunday, October 7 this year. If you have never been on a BMW club tour, you should consider going. We always take a scenic route through the mountains, and look at the beautiful fall colors. We have several photo opportunities. The tour is normally a few hours, with a lunch stop around noon. If you own a convertible, bring it!

In answer to a question I have heard a few times: BMW CCA tours are mostly fair-weather events. In case of rain, snow, etc., the tourmeister has the option of postponing or canceling the tour. It is supposed to be fun and scenic, not an endurance contest.

The November tech session at Southwest Collision Craftsmen has been postponed. It will be rescheduled for early 2008. We will announce an alternate November tech session soon.

The December tech session will be on Wednesday the 12th at Sandía BMW in Albuquerque. Sandía Service Manager Jeff Cline always arranges a great meeting with lots of new

and exciting information. We will also have New México Chapter officer elections. Watch for updates on the web or in the mail.

As is our normal custom, food is included in the above events.

Vehicle update. The new (to me) BMW X3 was intended to be a bad-weather vehicle, but I am increasingly using it as a daily driver. I have added the factory fog lights and alarm system. I have also installed all weather (most weather?) tires and a 3M clear front-end protector. My wife and I have already traveled to Colorado in our X3, and plan to take it to México about the time you read this. The 6-speed manual is definitely the right transmission choice.

Correction. Tony Harris is the Used Car Manager at Sandía BMW. Last newsletter, I made an error on his last name. My apologies to you, Tony.

The New México chapter of the BMW CCA is always looking for event leaders, and also officers for the board of directors. If you are interested, please notify someone on the current BoD.

As always, watch your email for changes and updates to the events. You can also check <http://www.nmbmwcca.org/> for additional information.

I hope to see each of you soon!

Jon van Arsdel
President
BMW CCA of NM



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NMBMWCCA.ORG



Back Seat Driving

If any of you ever find a worthwhile or interesting BMW or auto-enthusiast related article while you are surfing the web, please take a moment to send a link to me. We are always on the lookout for material to include in our next issue. Your participation will help ensure this remains your newsletter! I look forward to hearing from you.

Bill Kurey

editor@nmbmwcca.org

Interesting BMW Video Links

The following links were provided at the August Tech session at Santa Fe BMW. If you are looking for some interesting videos check these out!

M3 crash Lime Rock

<http://www.youtube.com/watch?v=BqotxO93Hk4>

30 Years of M Power

<http://www.youtube.com/watch?v=xj4AZQTSCW4>

M5 rocket car

http://www.youtube.com/watch?v=wS_oUno0cDA

X5 rally near roll

<http://www.youtube.com/watch?v=BXWiaz-FCsI>

1000hp M5

<http://www.youtube.com/watch?v=lv6NwGqOKN8>

Manx rally M3

<http://www.youtube.com/watch?v=NE-V3TaNGss>

V10 M5 test/drift

<http://www.youtube.com/watch?v=21lWi369AHk>

Schnitzer @ the Ring

http://bmw-k.com/video/schnitzer_NBR.wmv

M3 GTR engine warm up

http://www.youtube.com/watch?v=hb4ohPR_ZeA

On board w/M3 GTR

<http://www.youtube.com/watch?v=Fgy9vc4rf90>



Welcome New Members

ALBRECHT	LARS	335i	2007
CELIS	KURT	M3	1997
DOMINICK	JAMES	328xi	2007
GROSS	ROBERT	330i	2004
HSU	LEE		
PASCHICH	WRISTEN	2002	1968
SAMS	GARY	M3	2006
SPEED	DAVID	X3	2008
THIBODEAUX	DWIGHT	X5	2007



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On the Docket



October 7, Sunday. Annual Karl Fox Fall Tour.

November. Tech Session to be announced.

December 12. Tech Session at Sandía BMW 6:00 p.m.; election of NM chapter officers.

January 10, 2008. Membership meeting.

[How To Get Out-of-Stock BMW Parts From Your Dealer in 3-4 Days](#)

Have you had problems getting BMW 2002 parts lately? I will try to remove the cloak of mystery about BMW parts availability as it concerns you and your local dealer.

The dealerships are on a regular two-week cycle to replenish normally stocked parts. From the time a dealer orders parts until they arrive in this area takes about 2 weeks (BMWNA has a staff of only 20 people in its parts dept. in Montvale, N.J. to fill parts orders.)

Suppose you must have a part immediately if not sooner because your Wonder car is not drivable (you snapped a drive shaft or something else very exotic), and the dealer does not have the part in stock. In this case the dealer should phone in the parts order to get it along its way ASAP.

A request of this type should be honored without any fuss. But, suppose you need a center logo for one of your wheel covers (again not in stock — dealers cannot possibly stock one of every part). It would be unreasonable to expect a dealer to special order this part. The reasons are simple. Dealers do not get as much discount on special orders (30% vs. 40%), and they also have to pay the freight that BMWNA now pays on regular restocking orders.

If you must have your wheel cover logo sooner than normal ordering will permit, let me suggest this — offer to pay for the part in advance and also (maybe) pay the freight. You should get the part in 3-4 days by UPS.

Finally - any time you need BMW parts be sure to have the car serial number. **Author:** Phil Williamson

As seen on: <http://www.02restoration.com/random-tips/how-to-get-out-of-stock-bmw-parts-from-your-dealer-in-3-4-days/>

NMBMW CCA CHAPTER FINANCIAL STATEMENTS-2006

BALANCE SHEET

<u>ASSETS</u>	<u>Current Year Ending 12/31/2006</u>	<u>Prior Year Ending 12/31/2005</u>
Cash in bank accounts	\$4,677.99	\$4,762.49
Inventory	\$0.00	\$0.00
Equipment	\$0.00	\$0.00
Accounts receivable	\$0.00	\$0.00
Prepaid expenses/ deposits	\$0.00	\$0.00
Other:	\$0.00	\$0.00
Total assets	\$4,677.99	\$4,762.49

LIABILITIES & EQUITY

Accounts payable	\$0.00	\$0.00
Other:	\$0.00	\$0.00
Equity/retained earnings	\$0.00	\$0.00
Total liabilities and equity	\$0.00	\$0.00

INCOME STATEMENT

<u>INCOME</u>	<u>Current Year Ending 12/31/2006</u>	<u>Prior Year Ending 12/31/2005</u>
Membership dues	\$5,211.09	\$4,882.16
Rebates from National	\$608.28	\$597.32
Advertising revenue	\$0.00	\$0.00
Driving school fees	\$0.00	\$0.00
Autocross fees	\$0.00	\$0.00
Other event fees	\$0.00	\$0.00
Merchandise sales	\$0.00	\$0.00
Interest	\$0.00	\$0.00
Misc./other	\$300.00	\$550.00
Total income	\$6,119.37	\$6,029.48

EXPENSES

Newsletter costs	\$1,131.90	\$832.18
Postage	\$1,282.10	\$1,083.30
Insurance	\$0.00	\$0.00
Driving school expenses	\$292.50	\$0.00
Autocross expenses	\$0.00	\$0.00
Meeting expenses	\$2,855.17	\$2,520.96
Other event expenses	\$0.00	\$0.00
Telephone expenses	\$0.00	\$0.00
Misc./other (list on page 2)	\$642.20	\$377.42
Total expenses	\$6,203.87	\$4,813.86
Net income (loss)	-\$84.50	\$1,215.62

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CLASSIFIEDS

Classified ads are free for NMBMWCCA Chapter members. Only BMW cars, parts, aftermarket add-ons will be published. All ads will run in one issue and will be removed unless a request is made to run the ad again. Member number must be included in all submissions. Please submit all ads to: webmaster@nmbmwcca.org subject: *Classifieds*. Ads may be edited due to space limitations. There is also the free classifieds section on the chapter website for you to use.

PARTS FOR SALE

- Various E30 parts (1987 325iS): Stock steering wheel—Excellent cond. \$150 OBO. Four SSR Comp. 16X7 wheels (wt. 11.3 Lbs.) w/ Falken 615 225/50 tires about half used - \$825. JC chip \$120. Misc other parts.
Joe Stephenson 235-7295

Check www.nmbmwcca.org for current classified advertisements!!

Getting a Grip on Winter Tires

by [Gerry Malloy](#) for Sympatico / MSN Autos Canada

Are your tires good enough to perform in winter driving conditions? Your life may depend on your answer. Contrary to what we were told when all-season tires made their debut almost three decades ago, they are not really *all-season* tires. That is, they are not optimum in all seasons, particularly in winter.

This is the message tire-makers now are trying to get across. Why this change in message? Because a lot has changed in the tire business in the last 30 years, and particularly in the last ten years.

When all-season tires were introduced, they offered substantially better performance in snow and rain than then-conventional summer tires, without significant compromises in dry-weather performance. Snow tires—with their deep treads and large, widely spaced lugs,—were still better in deep snow, but they were noisy, wore quickly, and compromised vehicle handling in dry conditions as well as on ice. That situation was aggravated by the then-common practice of installing snow tires only on the driving wheels—normally the rear at that time.

In winter climates where deep snow occurs occasionally but dry or icy conditions prevail, all-season tires were a better compromise most of the time.

The rapid and widespread adoption of front-wheel drive provided an additional reason for giving up snow tires, because people perceived that front-wheel drive itself improved traction in winter conditions. (It does—but primarily from a standstill; once moving, it can, in fact, be disadvantageous).

Two significant things have happened since then. Competitive pressures for constant improvements in dry performance, ride quality, tread life, tread noise and fuel economy have forced all-season tire design to become less aggressive, particularly at the original-equipment level. Hence, today's all-seasons may not perform as well as their predecessors in snow—especially wet snow or slush, which tends to pack into and fill up the tread voids.

During the same time, conventional snow tires have given

way to high-tech winter tires that perform better than ever in winter conditions, but also more than adequately in the dry, exhibiting few of the vices that used to characterize snow tires.

A New Breed of Winter Tires

Bridgestone was the trailblazer for the new breed of premium winter tires in North America. Its Blizzak, a single-purpose winter tire that clawed its way through deep snow and stuck like glue on ice, quickly developed a cult-like following. As might be expected, the success of the Blizzak created a new market niche that was quickly filled with competitors—BF Goodrich's Winter Slalom, Goodyear's UltraGrip, Michelin's Arctic Alpin, Pirelli's Winter Ice and Yokohama's Guardex, to name a few. Now many of those brands encompass a whole range of winter tires, including some biased for optimum performance on ice, and some designed specifically for SUVs. Each employs its own unique technology to optimize winter performance, wear rate and NVH (noise, vibration, harshness) characteristics—and all are a generation advanced from snow tires of the past.

We have been able to test most of these tires, often back to back, in various depths of snow, on ice, and also on dry pavement. Our tests have brought us to conclude that we would happily rely on any of them to get us through a long winter. There are differences, but they tend to be of degree rather than order of magnitude.

What is most important is the level of improvement they offer over standard all-season tires. Even at 15 mph, in tests we conducted on an icy surface, the vehicles equipped with winter tires stopped from a half to a full car-length shorter than identical vehicles on all-seasons. That could be the difference between a safe stop and a bumper-basher at a traffic light. At higher speeds, those differences get more dramatic.

As seen at:

<http://autos.msn.com/advice/article.aspx?contentid=4020490>

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WEB LINKS FOR THIS ISSUE

autos.msn.com/advice/article.aspx?contentid=4020490

<http://www.f1technical.net/articles/3893>

www.02restoration.com/random-tips/how-to-get-out-of-stock-bmw-parts-from-your-dealer-in-3-4-days/



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