



# The Rio Grande Redline



BMW CCA New Mexico Chapter

[www.nmbmwcca.org](http://www.nmbmwcca.org)

## Beyond Overrev by James Williams

Each and every rotating mechanical device on the face of the earth has a maximum rpm at which it can operate safely. From lawnmowers to Lear jets, engines have a safe limit, with a margin to boot, commonly known as redline.-it's clearly marked, right there on your tach, for all to see. Older cars with distributor-and-points type ignition would make spark at any engine speed, no matter if that engine speed was way over that engine's efficient redline. Our more modern engine management systems have the capabilities to omit spark and fuel at predetermined rpm. This is commonly known as a rev limiter. Rev limiters keep you from blowing the engine, right? Let's clear up a misconception: Rev limiters keep you from blowing the engine up with the throttle. The throttle could be held wide open with the gear-box in neutral and, in theory, the engine would not suffer. Don't try this at home.

So, what exactly is over-revving and how does it occur? Let's start with some definition of terminology.

***Overrev: to greatly exceed the given mechanical limits of rotating equipment.***

**Reduction Gearbox:** the standard transmission is a reduction gearbox, converting engine speed down to a lower speed. Automatics do the same thing but are not in discussion here. Transmission output drives the driveshaft, sending power to the differential, which is also a reduction gearbox. Thus, the engine has great leverage over the rear wheel.

**Downshift:** to shift the gearbox from fifth gear, to fourth, to third, etc. Motorcycles have a sequential gearbox, meaning the shifts only precede from one gear to the next. Automobiles have shifters that can

select any gear, any time. Can you see a window for mistakes here? Can you say "miss a shift"?

Three times this year alone, I have had M3s fall into my hands. One came in running on five cylinders, the other two had been overrevved so bad, engine replacement was required.

All three had bent exhaust valves, with the fatal two having bent intake valves as well. The piston crowns had round imprints and crescent shaped hammer marks from the valve heads. In both cases, the final blow was identical: each engine had valves bent over so far, a spark plug was broken and, a piece of the porcelain center cone had lodged itself beside the piston and scarred the cylinder wall too deep to re-bore. From one moment to the next, from a healthy engine to expensive junk.

How can this happen so often? What caused this to begin with? There is only one way possible and that is to miss a downshift and accidentally stick the gearbox into too low of a gear at too high a road speed. In most cases, I believe this to mean missing a fifth-to-fourth downshift and making a fifth-to-second downshift. Ouch!!

When this happens the events that follow are swift and sure. For the sake of demonstration, let's say we are motoring along at a nice, safe 100 mph. All is well and we are in top gear, with a corner in sight. We slow down and attempt to downshift to fourth gear. The shift is fumbled, second gear is selected by mistake, the clutch is re-engaged. Suddenly, the leverage the engine had over the rear wheels is history. Those big, wide rear tires have quite a bite on the road and do not slice. Continued on Page 5

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Remember to check our web site for periodic updates: [www.nmbmwcca.org](http://www.nmbmwcca.org)

## ***President's Message***

by Jon van Arsdel  
April 2008

Spring has arrived. The days are getting longer. The birds are blooming and the plants are chirping. And (ACHOOO!) the dust and pollen filter on your BMW needs changing. Simply go to your nearest BMW dealer, buy a filter, and (ACHOOO!) breathe easier. For most models, simply open the hood, and replace the filter in the housing near the firewall. Owners of older models (E30, E28, E21, etc.) need not bother.

This past quarter, we had three tech sessions.

The January 16th tech session was held at European Automotive Specialists (135 Wyoming NE). Owner Robert Weinberg was our host for this event. He gave a presentation on maintenance for aging BMW's. Also, Barry Ross of Alloy Wheel Repair of New México gave a presentation on wheel straightening and refinishing. He brought his well-equipped truck and showed club members some procedures for wheel repair. Phil Márquez was the event coordinator.

The February 21st tech session was presented by Lobo Motorsports, on the University of New México campus, in the Mechanical Engineering building. Professor John Russell and some of his students gave a presentation on their latest car for Formula SAE competition. The students are building a car from scratch of their own design. They plan to compete with it at a national SAE (Society of Automotive Engineers) event in California. We were all very impressed by the young and brilliant future engineers. David Penasa was the event coordinator.

The March 13th tech session was at Southwest Collision Craftsmen (3401 Claremont NE). Owner Manny Córdova gave an excellent tech session on restoration and repair of older BMW's. He even had several older cars as demonstrators. The cars had been wrecked, abused, or neglected; and were being slowly revived at the shop. Manny emphasized restoration must be a labor of love; it can be expensive. The topic seemed to resonate well with the New México chapter; I counted almost 40 people in attendance.

Upcoming events over the next quarter include the Spring Tour, the Clean Car Show, and a tech session.

The Annual Spring Tour will be on Sunday, April 27. Phil Márquez has volunteered to lead the tour. Come and view New México's scenic mountains. We will send out more details about a week before the tour. As in previous tours, this is mostly a fair weather event, since bad weather would likely attract few cars (other than a certain white X3).

The Annual Clean Car Show will be on Sunday, May 18 at Sandia BMW. Bob Kauffman is the coordinator for this event. Although plans are not yet finalized, the Mini Club and BMW Motorcycle Club may also participate. We are planning a barbecue after the show, courtesy of Jeff Cline and Sandía BMW. This will be a great social event, so please plan to

come, even if your BMW is not "showroom ready".

The June 21st tech session will be at Santa Fé BMW. Service Manager Andy Caperones will be the host. Among the tech session highlights will be the new BMW 1-Series.

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

On Saturday, April 19, the Cancer Services of New México is hosting an event called Driving Out Cancer. This is a benefit for the Cancer Services. Multiple car clubs will be participating. There will be a Show and Shine, as well as Kart racing. Entry fee for any or all events is now a flat \$40. The contact person for this event is Janet Quintana Cook at 505-280-6114.

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



# **NMBMWCCA.ORG**

**Redline**





### 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](mailto:editor@nmbmwcca.org)

### Welcome to Our New Members!

DOUGLAS CAYNE, 94 740i

PAUL JUDICE, 97 740iL

CHRISTOPHER QUINN, 76 2002

RANDALL ROUNTREE, 77 320i

FRED SEYBERT, 08 335xi

BRUCE SKEELS, 84 M635

### *Tech Tip*

### **BMW Shock Absorber Nut**

**by J. R. Schnieder  
Sunbelt Chapter**

Removal and reinstallation of the top nut on BMW front shock struts have always been a problem if the special and expensive socket tool was not available. Various makeshift solutions generally got the job done with some additional degree of difficulty. Now a very inexpensive (under \$10.00) new tool is available from "Lisle", the automotive specialty tool makers known for making the mechanic's life easier without causing bankruptcy. Lisle tool #20390, called a "Shock Absorber Tool for Ford" is the perfect fit for BMW, but Lisle doesn't realize the additional application. Now you do. Any auto parts store can obtain the tool for you.



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## On the Docket

**April 19.** Driving Out Cancer. Cancer Services of New México charity event.



**April 27.** Annual Spring Tour.

**May 18.** Annual Clean Car Show.

**June 21.** Tech Session. Santa Fé BMW.

**July 31.** Membership meeting.

**August.** BMW/Porsche Challenge and driving school.

**September.** Membership meeting

**October.** Fall Tour.



**Redline**

BMW CCA CHAPTER FINANCIAL STATEMENTS-2007			
BALANCE SHEET			
	Current Year Ending	Prior Year Ending	
ASSETS	12/31/2007	12/31/2006	
Cash in bank accounts	\$5,266.68	\$4,677.99	
Inventory	\$0.00	\$0.00	
Equipment	\$0.00	\$0.00	
Accounts receivable	\$0.00	\$0.00	
Prepaid exp/dep	\$0.00	\$0.00	
Other:	\$0.00	\$0.00	
Total assets	\$5,266.68	\$4,677.99	
LIABILITIES & EQUITY			
Accounts payable	\$0.00	\$0.00	
Other:	\$0.00	\$0.00	
Equity/retained earnings	\$0.00	\$0.00	
Total liabilities and equit	\$0.00	\$0.00	
INCOME STATEMENT			
INCOME	12/31/2007	12/31/2006	
Membership dues	\$5,416.68	\$5,211.09	
Rebates from National	\$589.36	\$608.28	
Advertising revenue	\$0.00	\$0.00	
Misc/other (see below)	\$300.00	\$300.00	
Total income	\$6,306.04	\$6,119.37	
EXPENSES			
Newsletter costs	\$1,174.03	\$1,131.90	
Postage	\$1,469.92	\$1,282.10	
Insurance	\$0.00	\$0.00	
Driving school expenses	\$0.00	\$292.50	
Autocross expenses	\$0.00	\$0.00	
Meeting expenses	\$2,730.91	\$2,855.17	
Telephone expenses	\$0.00	\$0.00	
Misc/other (see below)	\$342.49	\$642.20	
Total expenses	\$5,717.35	\$6,203.87	
Net income (loss)	\$588.69	-\$84.50	
MISC./OTHER			
	Current Year Enc	Prior Year Ending	
Misc./other income:	12/31/2007	12/31/2006	
Dir Dep Credit From Bank	\$0.00	\$0.00	
Dieter Fox Donation	\$300.00	\$300.00	
Sandia BMW Donation	\$0.00	\$0.00	
Total misc./other income	\$300.00	\$300.00	
Misc./other expenses:			
Checking Acct Fees	\$38.52	\$38.46	
P.O. Box	\$92.00	\$80.00	
Plaques	\$112.02	\$224.04	
Internet Provider	\$99.95	\$299.70	
Total misc./other expens	\$342.49	\$642.20	
CHAPTER: New Mexico		Fed ID #: 71-1024146	
PREPARED BY: David Penasa, Treas		TEL: (505 ) 275-2480 (H)	
DATE SUBMITTED: Feb 25, 2008		TEL: (505 ) 277-1141 (W)	



## 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](mailto: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.

### CARS FOR SALE

1994 740il for sale. Very nice Bimmer flagship; no tears in leather, no body damage, new tires, fresh windshield this year, 189k on car, 91k on factory alusil replaced engine, tranny valve body replaced at 179k, has run problem free before & since. Book value with new motor mileage @ \$4914.00 Edmunds consumer rating of 8.6. Price \$3000. Call 869-6981 to take a close look and drive

1982 633 CSI, Anthacite Gray, Superior Condition, New Tires, Interior Leather like new, \$4000.00, 505 263-1995

Check [www.nmbmwcca.org](http://www.nmbmwcca.org) for current classified advertisements!!

**Overrev** (Continued from Page 1) The transmission becomes an induction gearbox as the car and rear wheels are now driving the engine. The hapless engine is now being spun far faster than its mechanical limit. What does "mechanical limit" mean in real life terms? Let's step inside the engine and see what happens. An internal combustion engine of such high specific output is a well choreographed procession of parts narrowly missing each other and vulnerable pieces. Let's keep our eye on one cylinder to simplify things. When the valve is close, there is a small amount of clearance between the camlob and lifter. As the camshaft turns at half engine speed, the camlob touches the lifter, raising the valve off its seat to full lift. The cam continues to turn and the valve springs keep the lifter in contact with the backside of the cam lobe. The valve is well. In our situation, however, the engine is suddenly spun so fast, the cam actually throws the valve open and the valve springs cannot overcome the inertia to keep the lifter in contact with the backside of the camlob. Known as "valve float", the valve is open longer than the cam's intended duration. This also means that the exhaust valve is still extended into the combustion chamber as the piston reaches top dead center (TDC). The piston slams into the valve head, bending it over like a nail. At these high rpms, the piston and valves crash into

each other hundreds of times per second. By now, the driver has realized his mistake, kicked in the clutch and, as they say, it's all over but the shouting. The loudest sound to be heard now is the sound of his wallet screaming. Can this horrible outcome be avoided? Yes, with careful and deliberate placement of the shifter. Does this happen only to M3s? No. Any car with a standard gearbox is a potential victim. Know the top speed of each gear and learn it well. Must shifts be in sequence? No. Professional race drivers have different driving styles including downshifting. Two prime examples come to mind: Check out old Indy in-car camera shots of Nigel Mansell. Nigel downshifts so fast in sequence, the engine speed is never out of the powerband or far from the redline. Michel Andretti, on the other hand, slows for each corner in whatever gear he is in, then shifts to the proper gear at the apex of the corner and accelerates out at full-tilt-boogie. Either method is correct when applied correctly. Novice drivers new to sport driving, or an old pro, anyone can miss a shift in the heat of the moment. Presence of mind is the key here. Learn your limits and the limits of the car and mark it in your mind as clearly as that redline on your tach. **From March 1995 Trax**

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The *Rio Grande Redline* is the official publication of the New Mexico Chapter of the BMW Car Club of America, Inc. (BMW CCA of NM), and is not in any way affiliated with the Bayerische Motoren Werke AB of North America, Inc. It is published quarterly, and provided by and for the members of the BMW CCA of NM. Unless otherwise stated, maintenance and modification procedures herein are not "factory approved", and their use may void your BMW warranty. Ideas and opinions are those of the writer, and the editors or publishers, who assume no liability for information contained herein, imply no authentication or approval. Articles submitted are subjected to editing. Only the BMW CCA and its

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