

VOL. 7 NO. 3

MAY, 1977



What could be more impressive than a caravan of BMWs, all models and colors, snaking through the Maryland countryside? What could be more fun than a day of pure driving pleasure and socializing with other BMW owners?

Nothing. That's why the National Capital Chapter of BMWCCA offers its members the annual Spring Tour, a totally non-competitive event which consists of driving just for the fun of it and interesting sight-seeing as well.

This year's tour will be Saturday, May 21. Beginning at around 9:30 a.m., the Tour will follow a 175-mile route through the farmlands and mountain areas of Montgomery and Frederick Counties and the Gettysburg, Pa. area. Stops are planned for lunch at Gettysburg, antique shop browsing at New Market, Md. and an endof-Tour dinner at the Comus Inn, Comus, Md. The starting point, which will be in the Gaithersburg, Md. area, has not been confirmed at this time.

All interested people can sign up for the event by calling either Bob Hoey at (301) 948-8368 or Ken Wright at (703) 560-6224 as soon as possible. We will need to get an idea of how many people to expect. You can also register on the morning of the tour, at the starting point, with Ken Wright (orange BMW 2002, Va. lic. BMW-12). A fee of 50 cents per car will be charged for Xeroxing, paper, etc. Let us know if you have a CB radio so we can set up a communications system.

#### etiquette - part 5

### Name-Dropping, Image-Building and Faking It

(After a long absence from these pages, Dave Roach has returned to complete his scholarly series on BMW etiquette--ed.)

If you absolutely abhor on-the-road tests of your BMW, either because your car never runs right when you want it to or because you're just plain chicken, you may take comfort in the knowledge that there are two ways to avoid such encounters. One is to stay off the road; the other is to depict your car as the meanest, fastest motor that ever came down the pike. This latter is accomplished two ways.

At gatherings of BMW owners you can beef up your car verbally. To do this you must know a few basic terms: turbocharger, eleven-to-one compression, 312 degree cam (all these apply to the engine); five speed, four-eleven locker (transmission and differential, respectively); Bilstein racing struts, vented discs, progressive rate springs (suspension). Casually make

### **President's Message**

There are several upcoming events that will be of interest to our members. On Saturday, May 21 we will be conducting our annual Spring Tour. This event is described in detail elsewhere in this issue. Having pre-driven the route myself, I can assure you of two things: 1) the terrain involved in the route creates no risks for your car's finish or mechanicals, and 2) the route will be quite interesting for drivers and passengers alike. There are no competitive aspects to the tour. We envision this as a leisurely and pleasant drive through the countryside, with no pressures and plenty of opportunities to see sights, take photographs, etc. Make an effort to join us, and we won't steer you wrong.

The BMWCCA Cherished Date Autocross and the Championship Rallye will be held July 10 and August 7, respectively. There remains a great deal of work to be done in preparation for these two activities. Any members who feel they could be useful in the planning or execution of these events should contact one of the officers.

On the subject of club business, there are a few items to report. We are in the process of incorporating the National Capital Chapter in the state of Virginia, largely to provide protection for members in the event of legal actions resulting from any of our activities. Bob Brooks has generously taken charge of this task. Also, at the April meeting Fred Weinberg proposed a by-law amendment to the effect that our current mailing address (P.O. Box 685, Arlington, Va. 22216) be made permanent. At present, our by-laws permit the executive committee to change the mailing address at will. As a result the club P.O. box has been moved from one location to another at the beginning of each year for the convenience of the newly elected officers, but at the inconvenience of everyone else. Fred's motion is an attempt to eliminate this problem by

### der bayerische

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der bayerische is published monthly 11 times a year, January through November. The mailing address is Box 685, Arlington, Va. 22216.

Articles submitted are subject to editing and slight revision. Contents may not be fixing the P.Q. box at a relatively central location. This will be voted on at the May 17 meeting.

The national organization has released membership figures for the various chapters indicating new memberships and renewals as of April 8, 1977. In overall size, the National Capital Chapter ranks fourth (333 members). The larger chapters are Boston (505), New York (466) and Connecticut Valley (372). National membership totals 5,893 as of April 8.

Ken Wright, president

### **Service Reports Needed**

Service Reports Chairman Mel Morganstein promises a service rundown for next month's issue. Meanwhile, don't forget to contact him if you've had good, bad or mediocre service performed on your car and want your experience recorded for posterity and the benefit of other members.

Mel would particularly like to have reports about some of the lesser-known firms we don't hear about often. Right now he has an abundance of reports about VOB and Heishman, and not nearly enough about other places.

We'll print a service report form in a future newsletter. In the meantime you can file a report by writing to Mel, listing any information you think is important but definitely answering these questions: What model and year is your car? What were its symptoms? Where did you take it for repairs? What did you think was wrong with it? What did the <u>mechanic</u> tell you was wrong with it? Was the car fixed properly? If not, did they-fix it when you brought the car back? And that question of questions: How much did it cost?

Send your report to Mel at 2048 Seattle Ave., Silver Spring, Md. 20904.

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#### tech tips - paul broyles

### Spring Maintenance for Cool Summer Driving

Springtime maintenance is usually done after cleaning your house. That means you'll probably find all kinds of parts and goodies that you've hidden away. Here are some maintenance steps which may help you keep cool while driving this summer.

CHECK HOSES for: cracks (means hose is old) weakness, swelling, poor rubber quality age (more than two years old) loose hose clamps hoses over-compressed from clamps

RENEW ANTI-FREEZE if it is: more than two years old contaminated - by rust, dirt or sludge overheated or run hot for extended periods diluted - less than 50 percent mix

INSPECT WATER PUMP for: play in shaft or noisy operation leaking from seal vent (lower side) loose cooling fan or broken b ade loose bolts from air compressor bracket

CHECK FAN BELT for: cracking stretching fraying

CHECK ALTERNATOR for:



### More New Members

Welcome to these new members of BMWCCA and the National Capital Chapter:

Eric H. BagdikianWashington, D.James J. BakerChevy Chase, MJames B. BradshawAlexandria, VMarya K. BraunsteinWashington, D.John T. Collins IISilver Spring, MT. Allan CompWashington, D.H. Stephens DanceTowson, M	d. 2. 1. 2.
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H. Stephens Dance Towson, M	<b>a</b> .
- Maria	
A	3
Aaron Edmondson Kensington, M	
Dr. Kenneth Gerber Kensington, M	ł.
Michael C. Greenbaum Arlington, V	а.
Anne B. Keiser Washington, D.	2.
Mark C. Lane Kensington, M	. E
Dennis C. Lindeman Quantico, V	à.,
Burnell W. Meyer Upper Marlboro, M	ł.
Philip J. Meyers Bethesda, M	a.
Kyle L. Myers McLean, V	a .
Mark & Leslie Platshon Gaithersburg, M	. E
Robert M. Rauner Bethesda, M	. E
Robley E. Sawyer Bowie, M	з.
David Kaufmann Smith Baltimore, M	а.
William C. Wilkins Reston, V	a .

worn bushings (alternator may hit fan) worn bracket noisy bearings

THERMOSTAT - with engine warmed up 15-20 minutes, turn engine off and immediately check: bottom radiator hose (if hot, O.K.; if cold, replace)

- hose from thermostat to radiator (should be hot)
- water temperature (use gauge) and inspect for flow

CHECK RADIATOR for: cold spots leaks deposits in core (visual inspection necessary) swelling in tank area old or weak pressure cap

#### Symptoms and Solutions

A car will overheat for these reasons:

- A. Not enough coolant
- B. Restricted radiator
- C. Thermostat stuck closed
- D. Blown or badly leaking head gasket
- E. Loose impeller on water pump
- F. Collapsed water hoses
- G. Poor flow through engine from deposits
- H. Poor cooling action
- I. Trash or debris in\_front of radiator
- J. Incorrect timing
- K. Mechanical defects cracks seizing bearings or other parts
- L. Lack of oil

Any or all of the above reasons will cause overheating. The list should cover almost everything. If not, drink two shots of milk of magnesia and think about it in the morning. It could be electrical.

Try to find your car's problem in the list of symptoms below. Then check it with the diagnoses above. If you're not able to cover it with those listed, check with your mechanic -the problem could be serious.

- 1) Overheats immediately, never cools to normal -- check all.
- 2) Overheats immediately, then cools to normal -- check A, B, C, E, F
- 3) Overheats immediately, cools when moving -check B, D, E, G, H, I, J
- 4) Overheats only after long operating periods -- check A, B, G, H, I
- 5) Overheats immediately, sounds bad -- clanks and rattles -- check A, E, K, L
- 6) Overheats immediately, smokes, no power -check A, K, L

Next month: how to convert a German car built for England to U.S. 1972 EPA and DOT specifications, which means installing air pumps, intake manifolds, new ignition switches to accommodate buzzer systems, etc. etc. etc. etc.

There was a question asked at the last meeting about whether or not cooling fans use any horsepower from the engine. The answer to that is yes: cooling fans can take from 6 to 15 hp depending on size and construction.

### **How Synthetic and Conventional Motor Oils Work**

(This is the second of four articles about en-. gine oils, both synthetic and conventional.)

In this article, I will try to answer such deep and philosophical questions as: What does an engine do to oil? What does an oil do for the engine and how does it do it to it?!

#### by bruce cranford

Engine oil, both conventional and synthetic, must do the following to be an effective lubricant in your engine:

- 1. Permit easy starting
- 2. Lubricate and prevent wear
- 3. Reduce friction
- 4. Protect against rust and corrosion
- 5. Keep engine parts clean
- 6. Cool engine parts
- 7. Seal combustion pressures
- 8. Be non-foaming

The oil must be thin enough to be forced by the oil pump to the various parts of the engine when oil is cold. The oil must be thick enough to prevent contact of moving parts and reduce friction and wear. Two properties which affect the ability of oil to adequately perform this function are film strength and viscosity. During engine operation, various moving parts of the engine are continually being forced together, squeeeeeeezing out oil between the parts. The oil pump (bless its little heart) is constantly forcing oil in between the moving parts, thus saving your engine. When the layer of oil becomes very thin (e.g., during starts or under heavy loads) the film strength reduces metal-to-metal contact.

Viscosity is the property of a fluid that <u>resists</u> change of shape (i.e., thickness of oil). Kinematic viscosity is the absolute viscosity divided by the fluid's density (got that?!). Machines and test methods are available to measure kinematic viscosity of engine oils. In the United States, the unit of kinematic viscosity is Saybolt Universal Seconds (SUS). In countries using the metric system of measurement, the unit of kinematic viscosity is Centistokes (CS). More on this later.

For a given oil formulation, everything else being equal, the greater the SUS number, the thicker or more viscous the oil. The more energy required to move the oil, the greater the

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#### Warning for 530i Owners

Don't put flashlights with magnetic holders into your glove compartment and don't park your car under neon lighting. Any magnetic field brings absolute havoc to your black box for the fuel injection system.



### eventscalendareventscalendareventscalendar

#### May

- 15 Lotus Club Cherished Autocross
- 17 BMW Club Meeting, 8 p.m., Diamond Head Restaurant, 6900 isconsin Ave., Chevy Chase, Md.
- 21 Spring Tour, National Capital Chapter BMWCCA
- 22 Metropolitan Washington Council of Sports Car Clubs Open Rally
- 22 Annapolis Junction Sports & Touring Club Championship Rally

- 2:-22 SCCA Regional Races, Summit Point, West Virginia
- 29 IMSA Races, Lime Rock

#### June

- 5 Mid-Ohio IMSA Races
- 10 Branded Club Open-Nite Rally
- 12 University Sports Car Club Cherishea Autocross

Send calendar items to Virginia Van Poole, 2219 N. Roosevelt St., Arlington, Va. 22205





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### How Oils Do It

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ability to prevent metal-to-metal contact friction and wear. Conversely, the smaller the SUS number, the thinner or less viscous the oil. The less energy required to move the oil, the lesser the ability to prevent metalto-metal contact friction and wear. While a thick oil prevents wear and reduces metal-tometal contact friction, it increases the friction caused by engine parts moving the more viscous oil attached to their surfaces.

Oil must also protect the metal parts from rust and corrosion and from water and combustion byproducts. It must keep unwanted byproducts of combustion off the metal parts and remove any that might accumulate. Overheating <u>destroys</u> both oil and engine parts. Combustion temperatures are between 2000°F and 3000°F. Certain parts of the valves may reach 1000°F to 2000°F; piston temperatures may reach 1000°F; and some bearings can be destroyed above 300°F. The only fluid in contact with these parts is the oil, which must be used to cool them.

Oil provides the final seal between the cylinder walls and piston rings, preventing loss of pressure in the combustion chamber. Oil must not entrap air bubbles, which reduce its lubrication properties and cause foam.

During use, motor oils become contaminated by:

- 1. Abrasives
- 2. Combustion byproducts
- 3. Products of oil oxidation
- 4. Other deposit-forming substances .

Oil collects road dust, dirt and metal wear particles, all of which are abrasives and cause wear and damage to moving parts. Combustion byproducts such as water, acids, soot, carbon and lead get past the piston rings and dissolve in the oil. When oil becomes hot in the presence of oxygen, it oxidizes and forms sludge. If the oil gets hot enough it will decompose into various forms of sludge. Unburned gasoline can get past the piston rings and dilute the oil, reducing its lubrication properties and forming unwanted compounds. Many of these unwanted chemicals can combine with each other, destroying the oil.

The properties of oil can be improved and the effects of contamination reduced by the use of additives:

- 1. Pour point depressants
- 2. Oxidation inhibitors
- 3. Rust and corrosion inhibitors
- 4. Detergent/dispersant additives
- 5. Foam inhibitors
- 6. Viscosity index improvers
- 7. Extreme pressure additives

Pour point depressants permit oil to flow at lower temperatures. Oxidation inhibitors reduce the oxidation of oil at high temperatures, thereby reducing sludge formation. Rust and corrosion inhibitors prevent rust and catalytic action from occurring in the engine and literally eating away the parts of the engine. Detergent/dispersant additives help prevent combustion byproducts from forming. harmful sludge and varnish deposits. Foam inhibitors weaken the tiny air bubbles and cause them to collapse almost as soon as they are formed in the oil.

Most people realize that many liquids get thinner when they get hot or thicker when they get cold. Oil is no exception. As the oil heats up in the engine it thins out; viscosity decreases. If the oil gets too thin, metalto-metal contact takes place, greatly increasing wear. So another important property of the oil's ability to lubricate is how the viscosity changes with temperature. The viscosity may decrease as much as 400% between 0°F and 210°F for new oil! This thinning at high

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### **Bimmer Etiquette**

from page 1

mention of these objects as parts of your particular car and you'll never be challenged. Back these claims up with the names of places where you can get the items and people will buy you drinks. When they ask for rides, however, be prepared -- tell them you took out the rear seats to fit the roll bar in and you took out the passenger seat to get rid of excess weight. If some presumptuous soul has the audacity to ask to <u>drive</u> the car, a derisive look accompanied by a short laugh will suffice as a response.

Beside building up your car, you can also tear down other BMW owners. This involves the technique of one-upmanship. To do this properly you need to acquire and memorize the catalogues of several BMW tuning firms so, when your opponent mentions some particular device, you can mention a better one. For example, on hearing your opponent mention Borrani wheels, suggest that your Minilite mags are lighter and stronger. Or, if you wish to shut someone up for good, suggest that when you go out for a <u>real</u> drive you put on your BBS three-piece racing wheels with Pirelli P-7 racing tires.

Should some fool still decide to challenge you, you may avoid this challenge in a number of ways: (1) tell him or her that you don't want to waste your time racing some secondrate backyard mechanic (this is not the best method, as it usually ends with a small wager, such as the title to your car, to "make it worth your while"). (2) Explain that you'd be happy to accept but Preston Miller and Nick Craw have your car down at Daytona for testing. (3) Accept the challenge, but allow enough time to fill your opponent's gas tank with water.

#### Dave Roach

#### 

A sound film of the 1977 Road Atlanta IMSA races held in April will be the featured item on the agenda at the May 17 meeting of the National Capital Chapter, BMWCCA. The meeting will begin at 8 p.m. at the Diamond Head Restaurant, 6900 Wisconsin Ave., Chevy Chase, Md.

#### 



### **How Motor Oils Work**

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temperatures can be reduced by adding chemicals known as viscosity index midifiers. These chemicals do not allow oil to thin out as much at higher temperatures. Extreme pressure additives establish tough films on engine parts and reduce friction, heat generation and metal-to-metal contact.

Engine oils are classified and tested in accordance with the following conventions and, test methods:

- Society of Automotive Engineers (SAE) Crankcase Oil Viscosity Classification System
- 2. American Petroleum Institute (API) Engine Service Classification

The SAE developed a classification based on oil viscosity measurement. The classification system established seven distinct motor oil grades: SAE 5W, 10W, 20W, 20, 30, 40, 50. The "W" following the SAE viscosity grade stands for "winter," indicating the oil is suitable for use in colder temperatures.

Each grade represents an oil with a maximum viscosity value at 0°F and a minimum viscosity value at 210°F. For example, at 210°F a 50 grade oil is more viscous than a 30 grade oil. The same is true at lower temperatures. A

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1202 DOWNEY DRIVE VIENNA, VIRGINIA 22180

#### How Oil Works in Your Engine

from page 7 multigrade oil such as 10W-40 is as thick as a 10 grade oil at 0°F, and yet is as thick as a 40 grade oil at 210°F. In other words, the viscosity of multigrade oils does not change as much as the viscosity of a single-grade oil. Multigrade oils such as 10W-40, etc. are light enough for easy cranking at cold temperatures, yet heavy enough to perform satisfactorily at high temperatures. Table 2-1 summarizes the SAE Classification System.

The SAE Viscosity Grade Classification System identifies only viscosity and indicates nothing else about the type or quality of an oil or the service for which it is intended.

The API Engine Service Classification enables engine oils to be defined and selected on the basis of their performance characteristics in sequence tests and the type of service for which they are intended:

- "S" Service (service stations, garages, new car dealers, etc.)
- SA for utility gasoline and diesel
- engine service SB for minimum duty gasoline engine service
- SC for 1964 gasoline engine warranty maintenance service
- SD for 1978 gasoline engine warranty maintenance service, including SC
- SE for 1972 gasoline engine war-
- Table 2-1 SAE Classification System

ranty maintenance service, including SD

The sequence tests referred to earlier are a series of tests developed by the automobile manufacturers, petroleum industry and the American Society of Testing Materials (ASTM) for the evaluation of motor oils (e.g., Oldsmobile . Sequence IIC and IIIC, Ford Sequence VC). Similar tests were developed in Europe (e.g., a Ford Cortina Sequence II, MGB Screw Gear, Daimler Benz OM615 Kombi). Engine tests, both in the laboratory and on the road, are required to measure the in-service capability of an oil to protect the engine. Hundreds of hours of testing oil in selected passenger car engines under changing conditions of load, speed and temperature are involved. The tests are able to measure the performance of oils under the most severe conditions to which they might be subjected. Field testing is both expensive and time-consuming. By the time field testing is completed, a new engine may come along and present new lubrication problems.

This has been an attempt at a brief explanation of the function of engine oils. In-depth information is available in the references for this series of articles. Several articles have appeared in der bayerische and the <u>Roundel</u> that will help your understanding of oils and BMWs.

My third article will cover the various types of commercially available synthetic oils and what is known about them.

Bruce Cranford

Lowest Temperature Expected	Single-Grade Oils	Multigrade Oils
32°F (0°C)	20, 20W, 30	10W-30, 10W-40, 10W-50, 20W-40, 20W-50
$0^{\circ}F$ (-18°C)	10W	10-W30, 10W-40
Below 0°F (-18°C)	5W*	5W-20*, 5W-30, 5W-40

\* The American Petroleum Institute "Motor Oil Guide," 3-76, states that "SAE 5W and 5W-20 grade oils are not recommended for sustained high-speed driving."



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### Park Defensively....for the Good of Your Car

You've seen articles on defensive driving, but ...defensive parking? Yes! I learned my first defensive parking from Parker Spooner, publisher of the Roundel, when I saw his Bavaria parked the "wrong way" across three spaces in a remote corner of a McDonald's parking lot. Since then, I believe I've perfected the technique myself.

In a parking lot or garage with marked spaces, choose the most remote one -- the one where no one else is likely to park. The best space is in a corner, where another car could park only on one side of you. Then, with a BMW, you can squeeze into the corner as far as you can. Even if another car does park next to you, you have more margin of error.

Sometimes, of course, you have no choice of remote or open spaces; you must choose one between two other cars. First rule: don't park next to station wagons or cars with child seats. Children often open car doors with no regard for the next car.

Carefully examine the cars you'll be parking between. Besides those with children, avoid cars with badly chipped door edges; they are obviously careless parkers. Try to park next to another BMW, or a Mercedes, Jaguar or other fine-quality car that looks well taken care of. If you're familiar with the parking lot, you \_\_\_\_\_ may know of cars that will be there all day (like at an office building). Park next to these if you think you'll be leaving first.

Look around to see if it's possible for some careless driver to back into your BMW. If so, park elsewhere. Cars parked at right angles are asking for trouble.

When parking on the street, try to avoid main drags where you could be sideswiped or hit by a drunk driver, stolen car, bus, truck or whatever. Better to pay a dollar or two for a garage or lot than to have your car damaged. Also, stay away from corners (damage from someone turning too short).

At meters, etc., stay away from spaces where you are really squeezed in. Also, apply your handbrake. One night in Boston I saw a Ford PUSH a Toyota with its handbrake off forward about 10 feet, into an illegal space. The Ford then occupied the legal space.

Most people like to park in front of a shopping center or office building, but the safest arking spaces are often found at the side or rear of the building.

There is one ultimate cure to the parking problem: leave your BMW at home and buy a city/winter/airport car like my '71 VW.

Dick Neville, Boston Bimmer



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- Salads (verte, Niçoise, du chef, avocats, carrottes, artichauts)

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Boeuf Bourguignon, choucroute, coq au vin, poulet procencal, entrecôte bordelaise, mussels, coquille de poisson, boeuf mode, etc. . .

MEMBERSHIP APPLICATION	
BMW CAR CLUB OF AMERICA NATIONAL CAPITAL CHAPTER	A
Brewer St Je, Mass.	
ease accept this application for memb the BMW Car Club of America and the	
al Capital Chapter. Signature:	
Date:	
Name:	
Please Print	
Address:	
State: Zip:	φ.
Model of BMW:	
Year: Ser. No	
Model of BMW:	
Year: Ser. No	
Your check payable to BMWCCA must accom this application.	accompany
Joining during:	#(:
December-February \$18.50 March-May \$14.50 June-August \$10.50 September-November \$ 6.50	5 5
This covers your initiation fee of \$2.50 plus both National Capital Chapter and National dues to the end of the current calendar year.	f \$2.50 plus National Lendar year.

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