June 2003



Jak Rizzo in action at Oran Park

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Dave Birchall's 1965 Sea Blue Type 1 Factory Sunroof Volkswagen to end Beetle production this year Audi Nuvlari quattro concept car Jak's racing report TULZ - Part Seven

Toy Department

and much more....



A CLUB VEEDUB SYDNEY PUBLICAwww.clubvw.org.au

Proudly a member of the Council of Motor Clubs



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<u>Please have some respect for the committee members and their</u> families and only call during reasonable hours. 2004 VW Nationals

Easter - April: Saturday 10th & Easter Sunday 11th Sydney Australia

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Monthly Club meetings are held at Greyhound Social Club Ltd., 140 Rookwood Rd, Yagoona, on the third Thursday each month at 7:30 PM. All members and visitors are most welcome.

All mail should be addressed via the Secretary, c\-14 Willoughby Cct Grassmere NSW 2570

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CHRISTMAS IN JULY ST ALBANS RUN SUNDAY 20TH JULY

The run to St Albans will meet at 9.30 am from McGraths Hill McDonalds, on the Windsor Road and departing at 10.00 am sharp together in convoy to our destination of St Albans.

We will be using the Webb's Creek Ferry route on the forward journey and the Wiseman's Ferry on the return journey. Included in the total journey is approx. 17 km's of dirt and gravel road, handled fine when we tested the run. The ferries are free and a pleasant trip.

The trip there and back is relaxing and very scenic countryside, especially if you are the passenger, and our destination is a very picturesque little village.

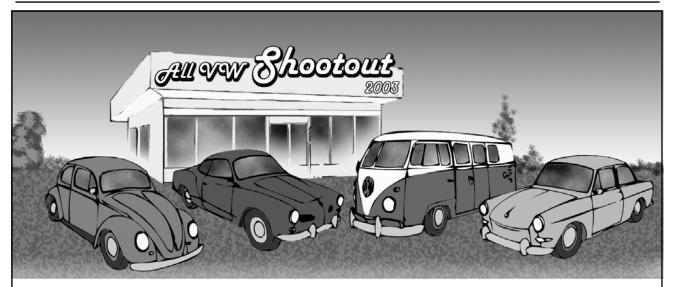
Our XMAS IN JULY run will have a final destination of The Fickle Wombat restaurant, where we will be having a traditional 3 course lunch Turkey, Ham etc. (We taste tested this place and its home made food) the premises are licensed and are cheaper than the pub prices nearby. The venue has a log fire for the defrosting of cold hands and feet, especially of the fully airconditioned bug occupants. The hosts are organising a car park across the road so all the cars are together.

The proprietors are Xmas decorating and if anyone is willing to bring a gift for the Kris Kringle to the value of \$5.00 (must be a present for same sex eg, Lady buys for Lady - Man buys for Man) if any kids are coming please wrap something for the kids as Santa will be making an appearance. Lucky car/door prizes on the day.

The cost is \$27.50 per head, I know you think this is a bit steep, well this is really good food, ring and I will give you the full menu. Suffice to say the dessert menu would get most people there.

Unless I know if any kids are coming I don't have a price or a menu for them, the numbers are necessary for menus.

Bookings are essential for catering, please ring & leave a message if need be with Robyn Cotter on (02) 9601 6946 to ensure your place at the table.



The All VW Shootout 03 9th November 2003

The Whitlam Center Memorial Ave - Liverpool (Undercover Venue)

Old School & New VW's (New Judging Format)

For more info Contact Flat Four Vee Dub Club, Murray AH 9618 2205

Volkswagen Golden Jubilee

Darling Harbour Forecourt. Sunday October 19, 2003

- To celebrate the 50th anniversary of Volkswagen in Australia, Volkswagen Classic & Vintage Club of Australia is presenting a unique car show at Sydney's most prestigious venue – Darling Harbour.

This coincides with the Sydney Motor Show.

Want to be part of this historic day?

A Jubilee Convoy of at least 50 specially selected Volkswagens will represent Australia's best examples of all types, spanning more than 50 years' production.

If you wish to nominate your car for inclusion, email details and a photo of your car to: webmaster@vwclassicclub.org.au or, snail mail those details to The Secretary, Volkswagen Classic & Vintage Club of Australia, PO Box 3051, Bilpin NSW 2758. Please do this as soon as possible as we want to make sure we have the best VWs of their type in Australia for inclusion in this historic event.

Only the 50 or so cars selected can be in the Jubilee Convoy and display.

A specially struck medallion will be given to each participant in the convoy.

Everyone is welcome to come to see the display and listen to our speakers. Entry is free.

If you want to discuss your vehicle prior to sending your nomination, call Stephen Muller on 0402 093 311.

Volkswagen Classic & Vintage Club of Australia

Presidents Report

This next couple of months will be quite busy on the clubs social schedule with a number of great events coming up.

Starting off will be Motorex on 5&6 July which is Australia's largest motor show. Our club will not only have cars on display, but also we will be doing a speed VW motor disassembly both on Saturday & Sunday around lunch time. This show is definitely the Expo of Power & Passion, check it out on www.motorex.com.au.

Next is Christmas in July organised by Robyn & Shirley, it will be held in St Albans at the Fickle Wombat restaurant, yes Steve (our multi talented Editor) it does have 18k of good dirt road & two ferry crossings, so no wimps need apply! Read details in ad in magazine.

On the 24 August Shannon's Eastern Creek Classic is on again it will have the usual high standard of classic vehicles too numerous to mention, also it is a chance to drive your car around the race track but not at racing speeds.

All of these events are great fun so I would like to encourage everybody to attend all or at least some of these events.

In the Spring we also have some events planned, one to a car museum another more adventurous safari across the mountains planned by our own intrepid mountain man ,more details as soon as dates are finalised.

Terry Thompson, the President of the Council Motor of Clubs will be attending the June club meeting, it would be a good idea for members who have their car on historical registration to attend this meeting to hear about rules that will effect the use of your on historical registration.

Keep on Volksing Paul Dujmovich



Club Calendar

June:

Thursday 19th:- CLUB VW MONTHLY MEETING at the Greyhound Social Club Ltd., 140 Rookwood Rd., Yagoona (right next to Potts Park). Get the latest VW news and views, plus VW socialising, drinks, films, trivia, and plenty of prizes. Guest speaker will be Terry Thompson, the President of the Council of Motor Clubs Lots of fun, all welcome. 8:00 p.m.

Sunday 22nd:- Flat Four Super cruise. Meet at 10 am at Uncle Leo's Truck stop on the Hume Highway. Follow the Hume towards the Freeway south at the Crossroads (Hume Highway - Camden Valley Way), Prestons like you're heading for Campbelltown. Any car type welcome - not just dubs.

Super cruise and BBQ at the end. Its leaving from the truck stop at the Cross Roads Casula and going up the freeway so all cars can be together taking the Picton exit then back down the old Hume Highway through Picton and Camden and then to the Liverpool Catholic Club for a BBQ. Leaving about 10 am and should take about 1.5 hours all cars are welcome and all clubs any make this is open to any car nut who just wants to cruise with fellow nuts and talk crap at the end for more info please ring Murray on 02 96182205 it's \$5.00 a car so come on and cruise

Sunday 29th:- Sydney Model Car & Toy Swapmeet at Penrith Panthers Pavilion, Mulgoa Road Penrith. 9.30 am — 4.00 pm. For more info call Mark on 02 4573 1217 or 0427 236 385

July:

5 & 6th:- Motor X at Homebush. Come along and see our club display as well as many other club vehicles.

Thursday 10th:- Committee Meeting & Magazine assembly night at the Greyhound Social Club, 140 Rookwood Rd., Yagoona (right next to Potts Park). This is the permanent

venue for all future meetings.

Thursday 17th:- CLUB VW MONTHLY MEETING at the Greyhound Social Club Ltd., 140 Rookwood Rd., Yagoona (right next to Potts Park). Get the latest VW news and views, plus VW socialising, drinks, films, trivia, and plenty of prizes. Lots of fun, all welcome. 8:00 p.m

Sunday:- 20th Run to St Albins, see page # 3 for more details.

August:

VW Spectacular 2003. 1st – 4th, Valla Park. If you are coming to the VW Spectacular please let us know as soon as possible on the mobile, if you need any accommodation as there is only camping facilities left at Valla Park.

Email donna501@bigpond.com or pell1@bigpond.com Mobile 0427 695203 Donna or Phone 02 6568 6327 Business Hours (ask for Luke)

Thursday 14th:- Committee Meeting & Magazine assembly night at the Greyhound Social Club, 140 Rookwood Rd., Yagoona (right next to Potts Park). This is the permanent venue for all future meetings.

Thursday 21st:- CLUB VW MONTHLY MEETING at the Greyhound Social Club Ltd., 140 Rookwood Rd., Yagoona (right next to Potts Park). Get the latest VW news and views, plus VW socialising, drinks, films, trivia, and plenty of prizes. Lots of fun, all welcome. 8:00 p.m.

Saturday 23rd & Sunday 24th:-Shannons Eastern Creek Classic at Eastern Creek Raceway, more details soon.

September:

Boris Picnic day, date TBA.

Thursday 11th:- Committee Meeting & Magazine assembly night at the Greyhound Social Club, 140 Rookwood Rd., Yagoona (right next to Potts Park). This is the permanent

venue for all future meetings.

Thursday 18th:- CLUB VW MONTHLY MEETING at the Greyhound Social Club Ltd., 140 Rookwood Rd., Yagoona (right next to Potts Park). Get the latest VW news and views, plus VW socialising, drinks, films, trivia, and plenty of prizes. Lots of fun, all welcome. 8:00 p.m.

27th and 28th. Canberra VW Weekend. Cruise and picnic on Saturday, Show and Shine on Sunday. Details ph Steve Crispin 0419 429 453.

October:

Sunday 19th: Volkswagen 50th Jubilee in Australia. Darling Harbour, hosted by the Volkswagen Classic & Vintage Club of Australia. See page 3 for more details.

November:

8th– 14th: 50th Anniversary of Volkswagen in Australia, Tasmania.

Sunday 9th:- Flat Four Shootout. EG Whitlam Centre Liverpool.

Sunday 23rd:-VW Picnic Day & Vintage Registration Day at The Western Sydney Regional Park on the corner of the Horsley Dr and Cowpasture Rd. More details soon.

2004

April

10th & 11th VW Nationals 2004.

For Sales

For Sale:- 1964 Beetle, wild violet in colour, rego until September 2003, tinted windows, good carpet and interior, all new window rubbers, new exhaust system, 12 volt system, stainless custom hubcaps, new distributor, 14 inch wide wheels, new running boards, new bumpers, driving lights, new brakes, new wheel cylinders, all new wheel bearings and seals. \$5,500 ono. Rego YFB 164. Contact Norm on

(02) 9605 6858 after 7 pm Monday — Friday.

For Sale:- Fastback 1970 1600 TL. Rego to April 2004, reliable daily transport or base for restoration. Car is located on Sydney's North Shore. Ph Steve (02) 9416 2472 or email: flih@idx.com.au

For Sale:- 1 pair Lynx Ramflo air cleaners (52 mm throat), brand new suit early beetle carbies \$60.00 pr. Call Mick (02) 9621 7369

For Sale:- 1969 Volkswagen 1500 Beetle, White, Semi Automatic 10 mths rego original condition throughout, regular servicing 2 owners current lady owner BUGSSE Excellent Condition \$6600 negotiable. Wetherill Park (02) 9609 5505 or 0418-20 7648

Help wanted for restoration:- I have a 1964 VW which externally is in a dilapidated state but which has a good and operative motor and gear box.

I would be interested in hearing from someone who is interested in restoring this vehicle. How we go about this especially in relation to cost can be discussed and agreed. I realize that a similar vehicle may be available at a competitive price. However there are those who like "tinkering" as do I. But time is a killer and this is a sentimental project I look forward to a response. Please call Doug on 0418614164.

For Sale:- 1976 Kombi pop top Camper, 2 litre injected engine in good condition, and excellent gearbox, runs well, body needs some attention, fully equipped kitchen, 3 way fridge, cooker and sink etc. CD player and original player, stone guard, custom roof rack. Unregistered, great restoration or parts Asking \$2000.00 ONO. Please contact Damon after p.m on 9944 7422.

For Sale:- 1957 Beetle, original 32,000 Miles, one owner, beige and red trim with white piping, original and unmarked !Original and good condition rubber floor mats. Suit collector. \$12,000. Call Peter (03) 9484 229 or 0418841866 or Horder@bigpond.com

For Sale:- 1972 1302S 1600 cc VW Beetle,

Mustard in colour, 4 speed manual, second owner with original service records available, Immaculate condition, Registered until May 2004, all original vehicle(only CD and speakers added. Insured value \$5200.00 we are asking \$4200.00 or Reasonable offer. Contact Amanda on 02 49 59 3193 or 0421 758 455 Coal Point NSW

For Sale:- 1955 Floor pan, Number 1-0 806288, new wheel cylinders with stainless steel sleeves fitted, new master cylinder, new brake lines, new brake shoes, new pan halves fitted and a reconditioned front end. please Contact John on 02 69 73 8814

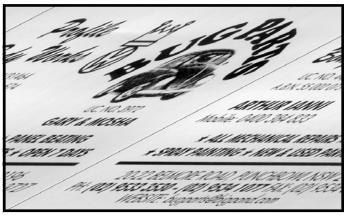
For Sale:- 1976 VW Beetle, plus heaps of spares including wheels, mags interior glass and a 1965 Floor pan, This car is unregistered but is in good condition, mechanically excellent, this is a genuine balljoint IRS model. Will consider swap for formula vee parts asking \$2500.00 ONO contact Mark on 994 5573 or 0408 494 400

For Sale:- 1978 VW Karmann Cabriolet Beetle, bare metal respray in original white 3 years ago, this car has travelled only 65,000 K's and spent most of its life on display in a VW dealers showroom, fuel injected engine, runs on unleaded, no rust and in very good order all round. Phone Peter on 07 32 29 0494 (wk) or 07 3396 2019 (home) or email thebray@bigpond.net.au asking \$23,000.00 for possibly the youngest VE in Australia

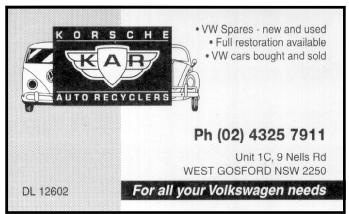
For Sale:- 1967 VW Beetle 1300, 12 volt, fair condition, good engine, body needs some attention, some rust, suit restoration, registered. Asking \$700.00 Ph Michael on 0415 783 531

For Sale:- 1972 Superbug, orange, good condition, reconditioned gearbox, regularly serviced. Call Colin on 9579 6028 or 0414 400 651

For Sale:- This 1964 Split Screen 13 window Kombi, has been owned by me for the past 7 years and has been restored for 5 years It has been converted to 12 Volt system It has the original clock and genuine mirrors. The kombi had a bare metal respray an finished in Birch









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green and lotus white two pack paint, All of the interior is completely retimed in original fabrics and is completely finished The Kombi has won multiple awards at Valla Park, The VW Nationals and also Volksday. The Kombi come with 12 months rego and is a delight to own and drive. Please contact John on 02 69 73 8814

For Sale:- Beautifully restored 1957 Type 1 Beetle - Has had a bare metal respray in Green, Fully detailed inside and out, new interior, rebuilt 36 Hp motor, West Coast Metric rubbers were used in this restoration, Stainless steel front and rear bumpers, Twin 6 volt batteries fitted, nothing to spend 6 months registration, please contact John on 02 69 73 8814.

For Sale:- VW Passat GL VR6 1995, Blue 201000 km, 9 months Rego. Features: Aircon, power windows, steering, mirrors, 6 speaker 10 stacker CD/Tape, 15" Alloys, Towbar, Tinted windows, Cruise control, multi function trip computer, service history, books and receipts, twin airbag, abs, four wheel discs, fold down rear seats, central locking, leather steering wheel. Car is straight and in good condition, mechanically excellent. \$9999 ONO, please call Julian for a test drive or viewing on 0414-319963 or 96075285. Prestons.

For Sale:- 1973 L bug, wattle yellow, recent respray, new interior, sport steering wheel, tinted windows, maintained by C&S Automotive in Padstow. \$5,800 ono. Call 9533 5408

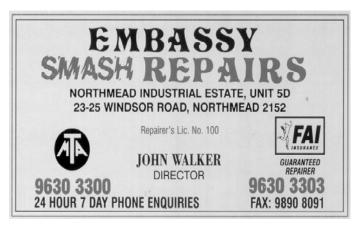
For Sale:- VW Golf Wheels and tyres, to suit Series 4 Golf, including 4 new Dunlop SP sports tyres 175 / 80 R 14 with dress rims. \$400.00 the set Contact Grahame Murphy on W 9618-7521 or Mob 0418-289-158

For Sale:- 1971 Type 3 Fastback TLE 1600. Fuel injected manual, reconditioned engine, original colour, new front seats (originals available), new stereo, November 2003 rego. Only two owners, and drives really well. \$3500 ono. Contact Karen on: work (02) 9695 3560, or home (02) 9587 0086, or email Karen.Whitaker@amcor.com.au

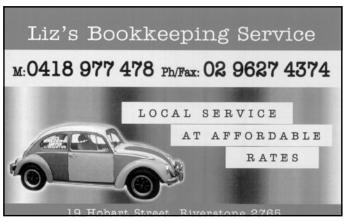
Wanted: Middle bench seat for late model

Wanted

Your add in this space.
The cost for 11 months is \$100, this does not include the annual VW Nationals program.
Contact Steve on (02) 9153 6782







Splitty Kombi. The folding single seat does not have a release lever on the side.

Windscreen washer bottle for Splitty Kombi. 2 VW engine stands, bench mounted or freestanding. Please phone Peter on 0419 016 392 or (02) 4782 5395 ah

For Sale:- 1969 Beetle, semi auto, unregistered, running, some rust, suit restoration. \$1000 ono, ph (02) 6649 0907 or mobile 0402 485 681

For Sale:- 1977 2 litre Kombi Microbus, minus centre seat, very good condition, \$5200, ono Ph. (02) 9606 9059 or E-mail awatts@pnc.com.au

For Sale:- 1975 VW Passat 4-door sedan. Crystal white. 86-hp 1500 cc engine. Mechanically sound, body straight, no accident damage and only very slight occasional surface rust. Paint and upholstery generally OK. Much loved runabout, owned for 14 years. Suit water-cooled VW enthusiast. Rego until May. \$500. Phone Emma on 041 5469367 (mobile) or (02) 9520 1445 (home)

For Sale:- Sky Blue 1975 Super Bug. Excellent condition & extremely reliable. A1 reconditioned engine (one of the best my mechanic has seen!) No rust 4 x 165-15 Michelin tyres radio/new speakers 72 200 kms on the clock Rego till April 2004 (a full year!!) Asking \$6000 ono Call Sophie 0422 634 253 / 9456 3149 or email: sopht33@yahoo.com

For Sale:- "Ferdinand", 1972 Type 3 Squareback. Classic Burgundy, new 1600 engine, Rebuilt carbs, Extractor, New, must-see interior, Clean and doted over with no rust. Rego til June 18. \$5,500. Full details of Ferdie's restoration on the web at www.hermes.net.au/cjb/ferdie.html Contact Annie or Chris in Katoomba on (02) 4788 1315 or 0421 836 370. Email: annie@hermes.net.au

For sale:- Beetle 1969 semi auto, rego till March 2004. Excellent condition, many extras \$4500 Ph: 9627 3798 AH



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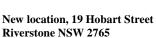
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TULZ - Part Seven

Dead Whales on the Moon

Lubrication as a concept is an interesting subject and an area of study in which mankind still has a lot to learn. Natural lubricants such as sperm oil and castor oil continue to reign supreme for certain applications; some instruments in the lunar lander were lubricated with sperm oil.

Lubricants are typically made up of 'long-chain molecules.' When I read that I got a mental image of ropes or strings. That's wrong. What I'm about to say is also wrong in the technical/ chemical sense but it will provides a better illustration than does 'long-chain molecules.'

Liquid lubricants are beads. Thin lubricants are little beads, thick lubricants are big ones. Grease is a special case. Grease is a necklace; beads on a wire. The wire is usually lithium, molybdenum or some other metal. The beads in grease are typically SMALLER than the beads in liquid lubricants. The thickness of grease comes from the fact the beads stick together whereas in oil the beads are free to move around.

Oil wears out when the beads get broken into smaller beads. Grease wears out when the wire holding the beads together gets broken, when the long strands become short strands.

Oddly enough, we don't change our oil because it wears out, we change it because it becomes contaminated. The usual contaminants are water and by-products of the gasoline combustion process. These combine with the oil and create new compounds some of which are corrosive and others, mostly carbon granules, make good abrasives. While some combustion products get into your sump by sneaking past your piston rings, most arrive there via your exhaust valves, which in the Volkswagen are not fitted with seals.

While combustion products are something of a problem in all engines, In older engines such as Model-T's or Volkswagens, a more serious fault is that the crankcase is open to the atmosphere.



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Particulate contaminants such as sand, dust, pollen, chicken feathers or whatever you happen to be driving through get sucked into the crankcase, along with plenty of moisture.

We change our oil to get rid of those contaminants. This wasn't always the case. The normal oil consumption for many early engines was as much as a quart every hundred miles. Early motorists considered an oil- change to be rather foolish since they were replacing the entire contents of the sump every five hundred miles. Back in those days you didn't change your oil, you simply 'topped-up' the sump.

Up until the late 1940's all motor oils were of the same type and the sumps of all engines of that era were open to the atmosphere. As moisture and combustion products reacted with the oil, a thick, jelly-like sludge was formed. This wasn't entirely bad since the sludge trapped most of the particulate contaminants. But eventually the sludge would fill all of the void-space within the sump and valve gallery, reducing the oil capacity by as much as 80%. To get rid of it, the engine was periodically 'slushed-out', a steam engine term transliterated into 'flushed-out' when applied to automobiles.

Slushing-out an engine meant removing the sump and valve gallery covers and scraping out the sludge. It was a messy chore, usually assigned to the youngest apprentice. (Ask me how I know:) Flushing out an engine meant filling the sump with an oily solvent such as kerosene or fuel oil, running the engine for few minutes then draining the oil. Unfortunately, dissolving the sludge in this manner released all of those trapped contaminants. You got rid of the sludge but in doing so you did a lot of damage to the engine.

Another alternative was to prevent the sludge from forming by adding a detergent to the sump. Of course, that meant the contaminants would remain in the oil but you dealt with that by draining the sump every five hundred or a thousand miles.

It soon became evident that the strategy of adding detergent to the oil and dumping it out at frequent intervals prolonged the life of the engine. The oil companies, who owned most of the service stations, began adding detergent directly to their motor oil and promoting frequent oil changes. The drained oil was then recycled by the oil companies and sold back to the motorist. Changing your oil instead of merely topping up quickly became the standard procedure.

Old motor oil can be 'overhauled' by simply removing the contaminants. Passing the oil through a filter gets rid of some of the contaminants but a real overhaul requires that the oil go back through a refining process to get rid of the chemical contaminants as well. Rerefined motor oil is just as good a lubricant and the brand name stuff.

Synthetic lubricants are more durable because their beads are smoother, in the chemical sense. They do not combine with the products of combustion as readily as do natural lubricants. This greater durability is of no benefit in early Volkswagens because the crankcase is open to the atmosphere, forcing us to change our oil every couple of thousand miles just to get rid of the contaminants sucked into the sump. You might want to keep that in mind the next time someone tries to sell you the latest flavour of sooper-dooper synthetic lubricant at thirty-two bucks a gallon, justifying its higher cost by how well the stuff worked in New York City cabs or Florida patrol cars. Remember the sperm oil and the lunar lander? There are some applications where traditional lubricants work best and your antique Volkswagen is one of them.

Multi-grade motor oils use small beads plus a plastic additive that is sensitive to temperature. When the temperature rises, the plastic additive pulls the beads closer together causing the oil to act as if it were made up of large beads. But if the temperature rises too high the plastic additive breaks down, leaving you with a sump full of small-bead oil when you need big-bead oil. For example, 10W-50 means the oil is 10W but has plastic additives that make it act like 50 -weight oil as the temperature rises. But if the additive breaks down you're left with a sump full of ten-weight oil.

Multi-grade oils don't break down until the temperature reaches about 350 degrees on the Fahrenheit scale, well above the highest temperature in any water-cooled engine. But in an air-cooled engine, in the area nearest the exhaust valves, it can get hot enough for multigrade lubricants to breakdown.

Oil Filters

Steam engines didn't have oil filters. When internal combustion engines came along, they didn't have oil filters either. If it was good enough for grandpa it was good enough for me, right? Nineteen million Model-T Fords and twenty-two million Volkswagens didn't have oil filters, proof that you don't need such things, right?

On the other hand, the service life of the Model -T was 20,000 miles. And its normal oil consumption was one quart per hundred miles. The Volkswagen was a phenomenal improvement. The VW was designed to last for sixty-two thousand miles (100,000 kilometres) and to use no more than a quart of oil every six hundred miles (*) Amazing improvement, eh?

(*) That's right, up to 3.4 pints per thousand miles. Most veedubs use a lot less but that is the spec for normal oil consumption. See the manual.

Today, the only thing we find amazing in such specs is how poorly they compare to modern automobiles, most of which can be expected to deliver up to a quarter of a million miles of service and measure their oil consumption with an eye-dropper instead of a bucket.

A major factor in this remarkable improvement in durability is cleaner oil, achieved by passing the output of the oil pump through a treated paper filter before any oil is delivered to the engine. This is called 'full-flow oil filtration,' meaning the total output of the pump is filtered even though only a few ounces of that are used for lubrication. This repeated filtering of the oil supply prevents most contaminants from doing any harm.

Ford Motor Company published the results of a formal study of full-flow oil filtration in the mid-1950's in the Journal of the Society of Automotive Engineers. Their report offered conclusive evidence that full-flow oil filtration reduced all modes of engine wear by a substantial amount, up to 600% in some cases. On the basis of that report, full-flow oil filtration systems were immediately adopted by all major automobile makers... except Volkswagen.

Hot-rodders, whose engines often represent an investment of thousands of dollars, were among the first to appreciate and to use full-flow oil filtration systems. Following publication of the Ford study, Volkswagen enthusiasts came up with a practical means of adapting full-flow oil filtration systems and found that doing so doubled the life of their engines.

The Type IV engine was designed around a full-flow oil filtration system but it took the Mexican engineers at the Puebla plant to come up with a retrofit for the early model VW engine. Their add-on filter-pump adapter was introduced in 1992 and copies are widely available from after-market sources. Unfortunately, a high percentage of the copies do not fit correctly. Unaware of the problem, many VW owners hoping to improve their engines ended up destroying them by bolting on the poor quality filter/pump adapters.

KEEPING IT GREASY

'Keep her greasy, she'll keep going,' was the punch line of a hoary old joke having to do with a misunderstanding between a bridegroom named Ford and a deaf mechanic named Doc. It was a real thigh-slapper. But like most folk humour it contains a nugget of wisdom. With regard to cars, keeping her greasy DOES make her last a long time.

Mention lubrication and the first thing folks think of is changing their oil. That's okay. But when it comes to Volkswagens, most folks do about as much harm as good because they remove the sump plate. Remember the thing about old-fashioned non-detergent oils and sludge? That's why the VW engine has a sump

plate. So they could flush out the sludge. See that void space under the strainer? That's part of your sludge collector. If you are using nondetergent oil then you MUST remove the sump plate and get the sludge outta there. But if you use modern high- detergent oil all you need to do is remove the drain plug; you should leave the sump plate alone. And stop calling the strainer a filter. It's there to keep chunkies out of your oil pump, not to somehow miraculously clean your oil. Oil filters remove particles so small they are measured in microns. A micron is a millionth of a meter and a meter is 39.37 inches so a micron is about .00003937 inches. The mesh of the strainer is about sixty thou (ie, .060)

That's like trying to catch fleas with a chainlink fence!

The main reason VW owners do so much damage changing their oil has to do with the design of the sump plate and strainer. The sump -plate is part of a five-layer sandwich consisting of the crankcase, a gasket, the oil screen, another gasket, then the sump plate. To insure a leak-free assembly you need to start with all of the surfaces being flat and clean then use highcompliant oil-proof gaskets, non-hardening sealant and the proper torque values for the six nuts. Things go awry right off the bat because typical sump gaskets sold today are permeable cardboard instead of resin-coated permeable gasket material. In plain language, they are unsuitable as oil gaskets; they leak. That means you have to spray the cardboard jobbies with a non-hardening sealant. Most folks don't. So the sump drips oil. So they overtorque the nuts which bends the hell out of the sump plate and the flange of the oil pickup screen and after that, it leaks even worse. Go figger.

The other thing folks do wrong is to NOT replace the crushable copper washers on the sump studs and drain plug. The copper washers are designed to do two things. The first is to form an oil tight seal, the second is to prevent the drain plug & acorn nuts from coming loose. Crushable copper washers are a one-time-use item. On installation, when torqued to the proper value, it gets crushed. The crush is what

keeps the oil in and the drain plug or acorn nut (s) from coming loose. Re-use the copper washers and you have to over-torque them to form an oil tight seal and by that time there isn't any 'crush' left, meaning things are going to come loose. Loose acorn nuts, you got a leaky, messy sump plate. But a loose sump plug can cost you an engine.

Over-torquing the drain plug also strips it out. The proper fix is to replace the sump plate AND drain plug but most folks just get one of those expanding rubber plugs and torque it in there and give themselves a pat on the back for being so smart. A high percentage of the Volkswagens I see have those IQ tests installed.

The crushable copper washers you need to do a proper oil change are part of the oil change gasket kit. Unfortunately, some outfits charge up to five bucks for the kit, making an oil change a rather expensive proposition. Which is why so many people re-use the same old gaskets and washers, over-torquing the hell outta things in a wasted effort to stop the drips.

Usta be, you could go down to the VW dealer and buy just the crushable copper washer for the sump plug. Cost something like eight cents. But since Volkswagen has abandoned their aircooled vehicles don't expect to find the drain plug washer at a VW dealer. Fortunately, Toyota and Nissan both use crushable sealing washers on their sumps, including one size that fits the VW drain plug. So take your drain plug to your Toyota dealer and pick up a baggie of washers. Cost is presently about half a buck each. Cheep, compared to five bucks for two cardboard gaskets.

Another major part of keeping her greasy is your tranny lube. It's good for two years of normal use, less if you do a lot of driving, ford creeks, dusty, unpaved roads and so on. The tranny and differential holds 85 ounces of lube, same as your engine (ie, 2.5 litres or 5.3 pints).

To change your tranny lube you begin by removing the FILLER plug... cuz if you can't get it out, you don't wanna remove the drain plug until you can. The tranny filler and drain plugs are tapered so you have to be careful

when you torque them in. Too much muscle and you'll crack the tranny. The plugs are socket-heads, they accept a 17 mm Allan wrench or you can make up a tool using a 17 mm nut or the head of a 17 mm bolt.

Once you've drained the tranny you refill it by PUMPING the 90W lube. You need GL4 lubricant type for old Volkswagens. Most folks will try to sell you GL5, which is the present-day standard. Unfortunately, Volkswagens started using cheap aluminium-phosphorbronze synchro rings about 1958 and GL5 contains additives that cause the synchros to corrode. So be sure to use the right stuff. Every two years.

The axle boots are part of your tranny. If they are leaking, replace them. If you have a 4-joint rear end (ALL Volkswagens have 'IRS' rear suspension. The problem is that the magazines don't know the difference between the different types of independent rear suspension.) ...if you have a 4-joint rear end, use CV lube and your needle to top up the CV joints. Or dismantle & relube them every two years. (Hell of a chore.)

The third most common category of greasy is lubing your front end. Here again, most folks make a serious error.

You know enough to CHANGE your motor oil. And you know enough to REPLACE your tranny lube. So will someone please tell me whythehell all the kiddies simply TOP UP their chassis lube?

To lube your torsion bars and spindles and anything else that uses grease you count the strokes until you see grease coming from the vents. Then you give it that many MORE strokes. The whole idea behind a grease job is that you are trying to CHANGE the grease, not merely topping it up.

Your front wheel bearings are the last common 'greasy' item. And the specs for packing Volkswagen wheel bearings are different than for American cars (those that still use unsealed bearings). The difference is that Volkswagen requires you to FILL the void-space with new grease, after removing all of the old stuff. A lot

of folks just grease the bearings and let it go at that. Doing so insures early failure of the wheel bearings due to lack of lubrication. Don't take my word for it. All of this is in the Volkswagen manual. The real one, not that 'official' joke from Bentley.

And right about there most people stop. Engine, tranny, chassis and wheels. All done, right? Not quite. Most Volkswagens use an oil-bath aircleaner, which is good; they work better than filters made of treated paper. (Treated paper filters came into use not because they are better but because it costs less to replace the filter element than to clean an oil- bath filter.) Each time you change your oil you're supposed to scrub out your air-cleaner and replace the oil. In addition to the oil bath your air- cleaner incorporates a labyrinth-type filtering element made of coir. Once a year or when otherwise needed, you flood the coir element with solvent, slosh it out, let it drain than soak it with kerosene. The kerosene serves to glue particles of dust to the coir fibers.

Now you're all done, right? Actually, you're just getting started :-)

Let's begin with the steering gearbox. Same rule as for the tranny; change it every two years. Now lets look at your tie-rod ends. Do they have Zerks? If so, lube them. But many of them are 'lifetime' parts, meaning they'll only last about half as long as they could. So you get yourself a 'boot needle' and squirt some lube into them anyway. (Boots gone bad? Sorry Charlie. If the boot is bad, so is the tie-rod end. Plan to replace them.) Ditto for your ball joints and CV joints; the boot is a necessity. Once it has failed the joint becomes contaminated.

How's your hood latch? It gets a different kind of grease but it still gets some. Or should. Ditto for the cable, which you are supposed to remove, clean and re-lube periodically (or discover the thrills of breaking into your own trunk).

Door hinges. Door latches & striker plate. Door lock (dry lube only, please). Window regulator. Wiper shafts. Wiper MOTOR (it has a gearbox too, you know). Ignition lock(!) Windwing

latches & pivots. (Ditto for push-out quarter-windows.) Gear shift, including the Infamous Grommet. Glove box latch & hinges. Heater valves. Emergency brake lever. Pedal cluster. Clutch cable & throttle wire. Heater wires. Seat tracks. Seat backs. Visor pivot. Deck hinges & latch. Throttle shaft & linkage. Graphite or other dry lube on the air flaps & thermostat linkage (oil or grease collects dust).

Got a radio? Does the antenna extend? Then it gets lubed too. And if it's a powered antenna you've got another motor & gearbox to deal with.

Back in the good old days, whenever that was, most of the items above were checked and lubricated every time you took your Volkswagen to the dealer for service. They used a check-off list to be sure they didn't any of those 'unimportant' items and they used the proper lubricants for each case, about a dozen different ones and several different applicators. They did the work so neatly that you couldn't tell it had been done. All you knew was that you took your bug in for an oil change and got it back as good as new, or nearly so.

Today, we hear a constant litany of broken hood latch wires and sticky brake pedals and doors you have to slam nine times and bad wipers and wacky steering ...

Now you know why.

Your antique Volkswagen is a highmaintenance vehicle. If you paid someone to do all of the required maintenance according to your vehicle's original preventative maintenance schedule, you'll find it costs more to own & drive than a modern luxury car. But if you fail to give your veedub the maintenance it REQUIRES you'll soon find yourself driving a piece of shit.

It's up to you. You're the Mechanic-in-Charge.

-Bob Hoover

THE TOY DEPARTMENT

It was good to catch up with many of you at the VW Nationals!

I realised as I was looking around, including at myself how over the past 15 years we have all have changed a little, (except for Brain & Hicko they never change) people who come and go temporarily from the VW scene, either to commit to family, or to a mortgage.

But their passion for VW's continues to be strong. I hope you enjoyed the day, and were successful in your pursuit for more VW models for your collection.

Hello to Hayden Muller who also shared his passion of VW models with me. He kindly showed me a picture of his collection and we hope to share this with you in the future.

I thought we would talk about the Hongwell models that Mobile Model Cars were selling at the Nationals.



These 1/67 and 1/43 scale models were going like hot cakes. I likened it to a Grace Bro's sale. These models were very popular indeed and represented value for money at \$6.00 for the 1/43 scale, which I assume, came in 7 variations & colours.

With the 1/67 set of 6 23 window Kombi's these came in a Perspex presentation box. These are great models for their price. I thought



to myself I'm gonging to open this box and enjoy them, big mistake! The plastic packaging was actually holding the hubcaps on. I would recommend that they be left in their box or if you must remove them be prepared to glue the hubcaps and rims back on, under a magnifying glass, but it's still a great presntation set.

The 1/43 model is combination diecast/ plastic and the detail is very good. If you missed out on these in the rush contact Steve at Mobile Model Cars & Toys on 0295435364 for stock availability.

Also Johnny Lightning have released a 3 third series of Beetle and Kombi blister packs. The kombis are, two tone pale yellow, pale green, grey pick up, & last but not least the very rare, not many available, highly sort after, others would like to get there hands on one, dark blue Samba bus. © Tony Bezzina



Dave Birchall's 1965 Sea Blue Type 1 Factory Sunroof

I purchased this car in 1988, with the intention of restoring it, to match my other car a 1956 Type 1 Oval window Factory sunroof restored in 1981 to 84.

The car was bought from Nicholas Lathourakis, and I had to store it for a few years before I could get around to starting the project.

In 1991 I removed the engine and stripped it, commencing the overhaul. The 1200 engine case was cleaned and faced and tunnel bored back to original specs. A new set of barrels and pistons were bought from the USA and a brand new set of heads came from Vintage Vee Dub Supplies. The camshaft was reground by Watson's and a set of 1600 1.1 rockers were added. The engine was assembled but not run until around 1998.

The car remained in storage until 1993, when space became available, and in October



the car was completely stripped down to the last nut and bolt ready for panel work to begin. It took another 3 years for the main body to be completed and have the doors fitting correctly. After this process the main body went into storage for 3.5 years.

The floor was the next project, after replacing one pan half, and straightening the other, the floor was then sprayed in baked enamel and completed in April 1997. By the end of 1999 the floor was back on wheels and ready to be driven. A seat was attached together with a steering column making the chassis drivable. It was test driven proving both the engine, gearbox and brakes worked.



During the longer stages of the restoration, the smaller components were restored and boxed ready for assembly. These included headlights, chrome side strips, door components, seat belts, front and rear seats, bumper bars and overriders, window glass, accessories, taillights, gauges, radio, running boards etc.

All of the larger heavy items were sand blasted prior to paint and refurbishment. This included wheels, bumper brackets, brake drums and backing plates, fuel tank, running boards, seat frames, etc etc

The guards, doors, bonnet and engine lid were chemically striped prior to panel work and painting. The main body was reunited with the panels at Kurt's Precious Metal in Wollongong, and trial assembled, to check align all the body work prior to painting. This took nearly 16 months or so, after which 2 Pak Sea Blue paint was applied by Helensburgh Smash Repairs.

The main body was reunited with the chassis in May 2001 and made driveable in the next month or so. Total time the body was of the chassis was 7.5 years. This was a major step and allowed the new process of installing a headliner. I searched around for a trimmer that could supply OEM roof lining, but unfortunately this process of installation took over 12 months.

Over the Xmas break 2002 the car was finally assembled fitting all guards, engine lid, bonnet, running boards, and bumpers. Interior carpet was fitted together with all the seats and seat belts. In March 2003 vintage registration was granted and fine tuning began.

Inspiration for this car came from Boris at Vintage Vee Dub Supplies, who also

supplied all the components for the job. I would like to thank my Dad for the many Saturday mornings working on the project over the past 15 years.

I was not in a hurry and during the 15 years I rebuilt several other cars including the Orange Smoothie. I found doing a few of the components while waiting for other things to happen, made the time go quick, and final assembly easier.

A lot of components were obtained from various VW swap meets over the years.

Accessories fitted include: - Headlight Eyebrows, Door handle scratch plates, rear Venetian blind, 90 MPH Trip Speedo, Reversing light, Drivers side internal door pull, AWA Transistor Radio, Chrome rear air Grills, Under dash parcel shelf, Mesh sun visor and Drivers door wind visor, 40 hp Hazet toolbox.

Other accessories to be fitted, Judson 40 hp super charger, Empi 5 stud wheels, Empi Steering wheel, Jack Braham Lukey Exhaust, 6 Volt Tacho, Oil temp and Judson Supercharger gauge, Gear shift Lock, Bug Screen and Fog lights.

Vintage Vee Dub Supplies Campsie 789-1777 Kurt's Precious Metal Wollongong 4283-4444 Helensburgh Smash Repairs 4294-1200

U guys in the VW's are nuts......fantastic to watch though!

This is just a very small extract from CT & my phone calls even days before we were to race with the Porsche club at Oran Park on the 10th of May. The fact that we were able to drive our cars to the track, let alone race is a small miracle on it's own.

Yes folks, it's that time of year again when CT & myself feel it our duty & dare I say our responsibility to uphold the Volkswagen Motorsport flag & take to the track with the

NSW Porsche club to carve up the curves, catapult down the straights & generally hold on for dear life in our "souped up" lawnmowers, but race fans we take great comfort with safety in numbers, for CT & I have been joined by 'Big Rudy' in the Ex John Watts sports sedan L-bug, running a high compression, Avgas slurping 1916 cc, with absolutely no ground clearance & race slicks, Rudy has already been doing some blistering times at the track this year, improving his times by as much as 2 seconds per track session.!

Paul Loiacono has also joined in his L-bug, sporting Falkan slicks, suspension & brake work from V-Force, 1916 cc motor, soon to be replaced with a 76×94 mm stroker from V-force. Paul's carting background has been evident as he has shown that he really knows



how to steer around a track.

Dieter Holzl will also be making his track debut in the next round in a Superbug, he has been practising on PlayStation & will definantly be a contender amongst the Porsche boys.

Saturday morning greeted us with blue skies & sunny conditions as we signed up & got our cars scrutineered before the days racing. Already there were a few kombis & Beetles in the car park to see some VW's try their best to stay on the track & in one piece.

We started the days proceedings with a 20 minute session on the track, basically to get familiar if u haven't been there before & also to sort out any bugs before the timed sessions started in the afternoon. CT & I were both a little nervous as we had done so many modifications to the cars since last year & with very few miles on them to check them out, this was really our first test session.



Just as a quick run down on what improvements we have made since last year, we are now both running identical close ratio boxes (1300 box converted to IRS) from Richard Holzl, we are also running identical Falkan street tyres, although I don't think CT was too impressed with them & will be returning to his Yokohama race rubber for the next run. CT's 1916 cc engine now has 044 heads with no port work (only chamber work to unshroud the valves) 40 x 35.5 valves and 1.1:1 rocker arms. The compression is around 10 to 1 (I think). He finds it quicker if not equal to his old heads which were street eliminators with 44 x 37.5 rockers and valves. 1.25:1 about compression. Not only that the 044s run about 5-10 degrees cooler and the engine takes longer to heat up. CT can't wait to put the current combo on the SAS dyno to see if there's any horsepower CT said the reason the street difference. eliminators didn't perform to expectations is that the inlet valves were shrouded (they needed chamber work) and the valves were just too big and needed too much valve spring pressure. A K -8 cam may find it's way into the case later on in the year but for now it seems to be running hard & that's what counts.

I on the other hand had a little unexpected surprise on the way home from the Bulli show, when half way up the mountain, in thick fog & traffic all around, the end cap of Chevy rod No.1 decided that it had enough & wanted out, a huge bang was heard, the oil light came on & that was that! Fast forward to present day, the little 1880 cc (90.5 x 73 mm) has now transformed into a 2027 cc (94 x 73 mm), the

crank was salvaged but nothing else up to the heads & rockers! Richard Holzl came to my rescue with a case already machined for 94 mm barrels & pistons & CNC machined for a 86 mm crank. A quick call to CB Performance in the States landed me some 5.7 inch Chromoly Hbeam race rods, cam duties are now handled by a steel billet K-8, Berg chromoly pushrods, pushing Berg 1.4 rockers, Berg dual springs, my old 040 heads with 40x35 valves were still perfect & were bolted back on. It's very tourgey & will be interesting to get it back on the dyno. I also now have rear disks with Ford callipers & DBA rotors which have been cross drilled as have the front disks. It now goes like stink & stops on a dime. Back to the racing.

CT was all wired up for his first run with a camera in the car, which will be fantastic to watch as he had a big oversteer moment coming onto the main straight, corrected it & powered out of the corner, it will make for compelling viewing. I also had a couple of moments of my own, coming down the main straight, locked the inside rear wheel, got it sideways, got back on the power & stayed sideways through turn No.1! It was a big shock to the system but from all reports it looked as though I meant it, hope the Porsche boys watching thought that!, then on another of my early timed runs I left it in third over the dog leg, roughly doing about 145 kph, got the car crossed up but somehow managed to keep it together, I'm now taking spare underwear to the track!

Highlights of the day was seeing Rudy in his L-bug keeping up with a supercharged 911!! I think that Rudy ended up with a 52.9 second lap time at the end of the day, certainly made the Porsche guys take note! Another was Paul, CT & I getting the whole track to our selves with





only a 924 Turbo. By the end of the 4 laps we had all caught & passed him! We got a big applause from all the VW fans on the hill watching as we pulled back into the pits. He didn't know what hit him!.

Whilst standing in the pits we were approached by another driver who said "U guys in the VWs are nuts!......fantastic to watch though!" a few minutes later the same guy drove past in a clubman race car which runs faster than the Porsche GT3's! & he thinks we are nuts!

The final lap times of the day were 58.2 seconds for Paul, 57.4 seconds for CT & 55.9 seconds for myself.

We can only go forward from here! Before we left the Vice President of the Porsche club asked us if we had enjoyed ourselves & said that they will probably end up giving us our own class.

I must give a big thanks to Steve Carter & John Ladomatos for the endless phone calls regarding VW stuff, CT for coming up one weekend to get the car back on the road, Richard Holzl for the gearbox, motor & brakes, plus the endless phone calls & workshop visits & my father Joe for the endless requests for things to be machined at work at short notice.

Stay Cool, Jak Rizzo

"A vision of tomorrow's elegant, powerful Gran Turismo"

This Audi design study has been named for the legendary motor racing star Tazio Nuvolari, the last driver to win a Grand Prix in an Auto Union car — in Belgrade on

September 3, 1939.

Nuvolari was born in Mantua, Italy in 1892 and died in 1953 — 50 years ago on August 11, 2003. He wrote motor-racing history like scarcely anyone else in the first half of the last century. His trademarks were his daring, spectacular driving style and the yellow pullover that he always wore in the car.

This small, slim Italian driver started his career on two wheels: Nuvolari was a motorcyclist until 1926. After numerous victories with other cars, he switched to Auto Union in 1938 and drove its 12-cylinder Type D mid-engined cars in Grand Prix races and hill climbs.

He won his first race in 1938 in his home country: he was the first across the finishing line in the Italian Grand Prix held in Monza on September 11, 1938. Only a few weeks later, he won another race in Donington, England.

An event that honours Tazio Nuvolari has been taking place annually every September for the past twelve years: the Gran Premio Nuvolari, a long-distance historic car race covering a distance of approximately 850 kilometres, with the start and finish in Mantua.

The main sponsors of this event, in which numerous high-calibre racing cars participate, are AUDI AG and its Italian importer, Autogerma.

The name Audi has given to its Grand Turismo study pays homage to one of the greatest racing car drivers of all time while bringing together the Audi Nuvolari quattro's progressive technology and the history of the brand with the four intersecting rings, which, on the road and in car races, has always stood for both style and sport.

With the Nuvlari quattro, Audi's designers have created a two-door 2+2 coupé with classic GT proportions. Its lines are an evolutionary interpretation of the current repertoire of outlines typical of Audi's styling philosophy.

After the debut of the Pikes Peak quattro crossover study at the Detroit Motor Show, the Nuvolari is the second car in 2003 with which Audi shows off the future of the brand: a future notable for systematic emphasis on sporting character, highly advanced technology, unique design and emphasis on

exclusiveness.

Gran Turismo — the term is synonymous with the ultimate high-performance, road-going long-distance sports car.

Without a doubt, the Audi Nuvolari quattro, which has a Luna Silver paint finish, is just such a car — and this becomes clear the very first time you see it. The long bonnet and the roofline dropping smoothly towards the wide rear end dominate the coupé silhouette of this graceful 2+2.

The windows are extremely shallow, emphasising the proportions of the 4.80-metre long, 1.92-metre wide and 1.41-metre high Nuvolari quattro. The gently curved coupé roof is supported by slim A and C pillars that blend smoothly into the rising shoulders of the body.

Significant when seen features from the side are the heavily contoured, dynamic line in the sill area and the bold, slightly rising shoulder line. The latter starts at the front wheel arch and continues its curve in wide arch that gradually flattens out. rises discreetly

towards the C pillar and descends just as smoothly behind it, thus creating a light line on the extremely curved side surfaces.

Front and rear overhangs are very short, which, together with the large 9-arm wheels in the circular wheel arches, emphasises the potent, compact body. This effect is added to by the high tail end with its remarkable stylistic uniformity; the two big, oval exhaust tailpipes provide a visual clue to the power this car's engine can provide.

The geometry of the boot lid and the transition between the bumper and upper rear end are variations on characteristic elements of the latest generation of Audi models. The lights, which are well wrapped round at the sides of the car, connect the side panels and the rear end and supply a new, distinct visual emphasis.

Walter de'Silva, Head of Design for the

Audi brand group, comments: "The Nuvolari quattro outlines the direction that Audi's exterior and interior design will take. We are aware of our brand's heritage, and will continue this success story in evolutionary steps."

The synthesis of evolution and innovation is also characteristic of the Audi Nuvolari quattro's front end: the rounded shape of the front side panels toward the bumper is a deliberate reference to the lines of the Audi TT — which is, after all, one of the most successful examples of Audi's current styling.

The striking single-frame radiator grille has also evolved from the current design motif and has been arrived at by linking together the two double-grille segments of the current Audi generation.

Another new feature is the Nuvolari

quattro's slightly low-height inclined, main headlight strips. They make use of an entirely technology — superbright highperformance lightdiodes emitting (LEDs). This is where, again, Audi's once y p i c a 1 groundbreaking design principles and its

proverbial 'Vorsprung durch Technik' combine.

Since they need less installation space than conventional ones, LED headlights allow the designer more freedom. The cooled highend lights, 18 on each side, are located much nearer the surface of the cover, which has also been reduced in size, so that the entire front end or the car is more harmonious in its styling.

In a future development stage, LED headlights will make dynamic cornering beams possible without the need for movable parts in the system. The braking lights and flashers benefit additionally from the LED's shorter response time. Whereas it takes conventional bulbs around 200 milliseconds to reach their full brightness, LEDs need less than one millisecond. And since they require less space, LEDs provide the designers with additional styling options at the rear of the car.



Like the current A8's frame architecture, the Nuvolari quattro's Audi Space Frame (ASF) consists of a combination of extruded aluminium profiles and cast parts connected tightly together, for a combination of minimum mass and maximum strength.

As is typical for a coupé, the doors have frameless windows. All four side windows can be fully lowered. And a new opening technology is used: as soon as the keyless-entry transmitter in the key has unlocked the door by means of a signal, a recess opens inwards below the handles, which are normally flush with the body. The handle space is illuminated by an LED.

Leather and aluminium: the atmosphere in the Nuvolari quattro's interior consists of a dialogue between organic and highly technical materials. The contrasting Stromboli black and Carrara white leather elements and the cool metal surfaces add structure to the layout of the dash panel, doors, and centre console. The four individual, heavily contoured seats with integral belts are of typical sports car design and provide ample space for the driver and passengers.

The high, substantial centre console which continues through to the rear of the interior, has also been designed according to the classic GT philosophy: the driver and front passenger will feel themselves to be almost part of the vehicle. The three-point seat belts are attached on the insides of the seats.

As an occupant protection measure, two discreetly installed cameras for the 'out of position' airbag system monitor the front passenger's seat position and vary inflation of the airbag accordingly.

The Tiptronic gearshift lever has one shift gate. If the driver prefers to select gears manually, he or she can do so using shift paddles behind the three-spoke sports steering wheel — as in the Le Mans-winning Audi R8. The shift lever is then only used to select the P, R, and D modes. Like the pushbutton-operated electro-mechanical parking brake, the gearshift mechanism has no mechanical connections whatsoever.

Even the glove compartment is equipped with high-tech features. It is opened by fingerprint recognition — 'one-touch memory' — rather than with a key. A sensor

field the size of a stamp consisting of 65,000 electrodes scans the fingerprint and opens the lock after verification against memorised data. The advantage: whenever the owner has to let others drive the car — i.e. valet parking — valuables can safely be left in the glove compartment.

Surrounding light strips from the instrument panel via the side door trim to the rear are central interior design elements in the Nuvolari quattro. LEDs are again used as the light source; the illuminated surface distributes their light homogenously providing lighting without glare.

High power output, maximum torque, refinement and a fascinating sound — these are the basic characteristics of a perfect GT engine, with a fascination that lies both in its potent performance and its everyday usability. The 5.0 -litre 'biturbo' V10 has these features plus the 'bite' that comes from ample torque in all engine speed ranges and a willingness to run up to high speeds that is second to none. This engine is a new design, capable of generating an impressive 600 bhp. FSI petrol direct injection, the advanced technology that is setting new standards and has already paved the way for historic victories in the 2001 and 2002 Le Mans 24-hour races and the American Le Mans Series, makes a decisive contribution to the engine's performance.

Among the most impressive features of the Nuvolari ten-cylinder 'biturbo' FSI engine's are its willingness to rev freely and the vigorous power flow available at all engine speeds. It accelerates the Gran Turismo from 0 to 62 mph in just 4.1 seconds and on to a maximum speed that has been governed to 157 mph. The maximum torque of 750 Nm is available at an engine speed as low as 2,000 rpm and remains constant over a broad engine-speed range. All this results in powerful, not to say supreme, forward thrust, the ideal precondition for driving long distances in a sporting style and also when storming up winding mountain passes.

The Nuvolari transmits the power from its engine to the road via the quattro permanent four-wheel drive layout, which is still unrivalled and provides excellent traction and lateral stability while minimising the effects of the driveline on the self-steering properties.

This is a precondition for the car's enormous cornering speeds and high dynamic stability. In other words: it offers maximum levels of both driving pleasure and active safety. Driving pleasure was of course one of the main requirements that the Nuvolari's chassis designers were asked to satisfy, because apart from having a powerful engine, GTs are expected to be extremely easy to handle and responsive.

To meet these requirements the Nuvolari has an aluminium chassis with four-link front and controlled-toe trapezoidal link rear suspension, and both of these concepts lead to enthusiastic cornering ability and high steering precision. A racing-car brake system with large cross-drilled discs is appropriate to a car of this kind, and can be glimpsed through the 9-arm alloy wheels.

The adaptive air suspension — 4-corner air springs with continuous damping control — is the first system of its kind in a GT that resolves the traditionally conflicting goals of excellent handling and comfortable shock absorption on long journeys. The lowered ride height at high speeds improves the Nuvolari quattro's aerodynamics.

Three pre-defined ground clearance levels are available: normal, with a ground clearance of 100 mm; the 'autobahn' level (from 100 mph upwards) with a ground clearance of 90 mm, and the raised level with a ground clearance of 110 mm, which is ideal for driving on bumpy roads up to a maximum speed of 25 mph.

Electronic control of the adaptive air suspension allows drivers to adjust the chassis characteristics and thus the driving dynamics to suit their own preferences in three modes: Automatic, Dynamic and Lift. Depending on the selected mode and the actual speed, the system automatically adjusts the damping characteristics and the car's ride height.

In conjunction with the electronically controlled, continuously adaptive damping system, the air suspension provides a combination of highly dynamic driving characteristics and perfect driving comfort.

Body acceleration, vertical movement of the four wheels and numerous other parameters such as the actual steering angle or the accelerator and brake pedal positions all influence the optimum degree of damping that is computed for every driving situation. If there is no need for increased damping, for example when driving straight ahead on good roads, the shock absorber settings remain in the comfort-oriented zone. Specific variation of the damping force at individual wheels eliminates body movements that could detract from the occupants' comfort.

Size 265/720 R 560 PAX wheels (which corresponds to a visible rim diameter of 20.6 inches) improve control of the vehicle in the event of tyre pressure loss and, even with a flat tyre, guarantee mobility for a distance of up to 125 miles at a maximum of 50 mph.

As an extension to the standard cruise control, radar-aided adaptive cruise control makes driving much more convenient, by automatically adjusting the speed in relation to a pre-selected distance from the vehicle in front.

Volkswagen to end Beetle production this year

Volkswagen said Friday it will stop making the original rear-engine Beetle later this year, bringing the curtain down on the nearly 70-year history of the classic "bug."

Production of the last old Beetles at the VW plant in Puebla, Mexico, will "end this summer," spokesman Fred Baerbock said, adding that an exact date was not set.

He said there had been sinking demand for the original model, manufactured only in Puebla since 1978.

The first version of what would become known as the Beetle was developed in 1934 under the guidance of Adolf Hitler, who wanted to build a "people's car" -- or in German, a Volkswagen. It first entered mass production after World War II.

Over the decades, the VW became a favourite of both thrifty post-war Germans and 1960s American hippies before competition from Japanese compacts elbowed it aside.

Volkswagen sold more than 21 million of the cars over the decades, but says it produced less than 30,000 at Puebla last year.

Puebla will continue to produce the New Beetle sedan, a modernized successor to the cult car. The New Beetle hit the market in 1998 and has a chassis based on the VW Golf.

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