Safer Driving

The Newsletter of RoSPA Advanced Drivers and Riders
Thames Valley Group

Autumn 2020

Beware - Wet leaves !

Photo by Peter Caton

NEW for pdf edition - quick search with hyperlinks
Click on any page number in the **Contents** *list to go straight to that article.*
Click on the 🗎 *icon in any footer or on the Cover photo to return to the* **Contents** *list.*
Click on the website address in the footer to go to our website.
Links to our Social Media pages are given on the back cover (page 23)

Contents

Who is who on the Committee?

POSITION	NAME	E-MAIL
President	Peter Caton	president@roadartvg.org.uk
Chair	Keith Pruden	chair@roadartvg.org.uk
Vice Chair	Robin Carlyle	membership@roadartvg.org.uk
Secretary	Andrew Storey	secretary@roadartvg.org.uk
Treasurer	Mike Cowling	treasurer@roadartvg.org.uk
Membership Secretary	Samantha Appleyard	membership@roadartvg.org.uk
Newsletter Editor	Max Davidson	editor@roadartvg.org.uk
Car Training Officer	Neil Goodhand	car-training@roadartvg.org.uk
Motorcycle Training Coordinator	Graham Knight	motorcycle-training@roadartvg.org.uk
Motorcycle Associate Coordinator	Robin Carlyle	bikes@roadartvg.org.uk
M/cycle Events & Social Coordinator	Tim Cuell	motorcycle-events@roadartvg.org.uk
Car Publicity Coordinator	Peter Caton	
Events & Social Secretary	David Tomlinson	events@roadartvg.org.uk
Car Without Portfolio	Peter McMillan	
Group Webmaster	Colin Ashley	webmaster@roadartvg.org.uk

The Editor writes...

Once upon a time *The Highway Code* was a slim booklet that set out the basics of how everyone should behave on the road. In the past 20 years alone it has grown in size with several new editions incorporating new legislation and the many changes to the volume and nature of transport in Britain.

The proposed latest changes, which have been sent out to selected members of the public for their reaction, takes a new stance on *The Highway Code*. It seeks views on the changes which are intended 'to improve safety for pedestrians, particularly children, older adults and disabled people, cyclists and horse riders.'

Let me quote to you from the consultation document: *'Everyone suffers when road collisions occur, whether they are injured or not. But those in charge of vehicles that can cause the greatest harm in the event of a collision bear the greatest responsibility to take care and reduce the danger they pose to others.*

'Cyclists and horse riders likewise have a responsibility to reduce danger to pedestrians. Always remember that the people you encounter may have impaired sight, hearing or mobility, and may not be able to see or hear you.'

This interim review of *The Highway Code* therefore focusses on the vulnerable groups mentioned above with specific consideration on overtaking, passing distances, cyclist and pedestrian priority at junctions, opening vehicle doors and responsibility of road users. There are three main changes that are being proposed through this consultation:

Introducing a hierarchy of road users which ensures that those road users who can do the greatest harm have the greatest responsibility to reduce the danger or threat they may pose to others.

Clarifying existing rules on pedestrian priority on pavements and that drivers and riders should give way to pedestrians crossing or waiting to cross the road.

Establishing guidance on safe passing distances and speeds when overtaking cyclists or horse riders, and ensuring that they have priority at junctions when travelling straight ahead.

Many rules are being re-worded so that *'should'* is replaced by **'must'**, which implies a penalty as it is no longer advice but a legally backed order. An example of this is the curb being put on the widespread practice of parking on pavements. At crossroads in towns without mini roundabouts, drivers wishing to turn right will no longer be able to do so with impunity across traffic going straight ahead.

Some people regard what they call the 'trifling rules' of *The Highway Code* and health and safety in general as an unnecessary interference in people's lives. I am not among them. Speed limits, variable and fixed, traffic calming, mini roundabouts and pedestrian crossings have all made our roads very much safer.

It may seem a strange thing to say, but what I learned mainly from advanced driving was that I make mistakes. It does not matter how good you think you are, there is always something you could have done better. For me, every drive I take is part of my learning process, and *The Highway Code* and *Roadcraft* are still essential reading.

Max Davidson

From the Autumn Chair

Not from the Chair

...sort of vaguely to one side of it

It seems so long ago and so much has happened since I offered to take over from Keith at last year's AGM. Put simply: we have all been stood on our heads with Covid-19 taking most of our attention and putting on hold what we fancifully considered 'normal'.

With this in mind, despite Keith finding himself under even more pressure at work, we decided that accelerating my stepping into his considerable shoes should be left until the originally planned autumn AGM, which will be coming up quite soon now.

Keith noted in his last message that we were looking forward to perhaps being able to restart tutoring. To some extent this has happened, motorcycle tutoring is inherently so much easier as there is no need to share a vehicle or to risk close proximity, but that is not to say that it does not have its own problems.

RoSPA HQ gave us the approval to make our own decision about restarting motorcycle training on 2 June which was good news indeed. Maybe it was connected to public transport issues, or just people having more time on their hands, but we have had eight new Members join. These have been added to the existing backlog of Associates put on hold since March. Our motorcycle tutors are busier than ever. RoSPA has also now re-started motorcycle testing and to date I know of several results in both gold and silver. Well done to those individuals. *(See footnote)*

With the nationally relaxed restrictions on public gatherings, car training was also permitted to restart by HQ from 4 July. Of course, this creates very particular measures that need to coped with. Neil and his team have put in place very robust systems to safeguard both Tutors and Associates when training. The primary safeguard is that Tutor and Associate to feel comfortable with this very different process. So take-up is quite slow.

Looking forward, despite the pandemic, as a Group we remain in a fairly healthy shape. We continue to attract new members and also interest from potential new Members. We also manage to retain our current membership of around 230. In recent months we have continued to develop our website – please do not feel shy in making suggestions – and also other social media. We also now have a new committee member in David Tomlinson who is taking up the role of Social Secretary and Events Organiser. Congratulations to him in stepping forward at this very tricky time. I am sure we will hear what plans he has for the whole of TVG at the forthcoming AGM.

Like the rest of the world, your Committee has been getting more familiar with Zoom than they would really like. But it has to be said that Zoom and other similar facilities have been a godsend. It is therefore perhaps a very small surprise for you to hear that this year's AGM will be held using this system. You will be contacted nearer the time directly on the detail and how the arrangements will work.

Robin Carlyle, Vice Chair

(Test results will be included in Congratulations in the Winter 2020 issue)

The Stag is still turning heads

The Triumph Stag should have been an outstanding success. With Italian styling, a luxurious interior, independent suspension, a removable hard top, a V-8 engine, with a stirring exhaust note, it was intended to surpass the Mercedes-Benz SL. Unfortunately, though brilliant in conception, its execution fell short of expectations. Yet, 50 years later, the Stag is still very much alive, maintained by a dedicated group of enthusiasts.

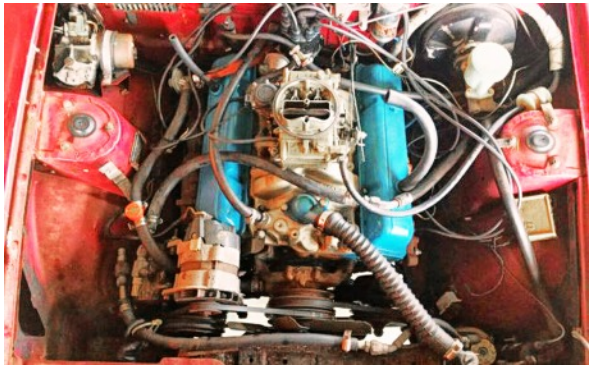
It all began in 1965, when Italian designer Giovanni Michelotti asked his friend Harry Webster, then director of engineering at Standard Triumph, if he could have a Triumph 2000 chassis for a project he was planning for the Turin Motor Show. Michelotti had already designed the Spitfire and Herald and Vitesse, TR4, and the 1300 and 2000 saloons.

Webster agreed to Michelotti's request, supplying a well-used factory car on the condition that if he liked the finished show car, he would have the right to buy it for Triumph before it went on display. Michelotti had joined Triumph in 1957, having designed cars for Ferrari, Maserati, and Lancia, among others. Just one look at the cars he designed confirm that he had superb skills. Perhaps more important from a manufacture's point of view, he was fast. He could take a concept from sketches to a finished result in three months, and then deliver a prototype that Triumph could then refine for production. He also did not charge much. The Stag prototype cost Triumph just £10,000.

On Webster's visit to Turin, he saw the partly finished Turin show project, now a 2+2 convertible, and showing no signs that it was based on a four-door executive saloon. Webster bought it on the spot. Once it was complete, the car was sent to England, where it was given the code name 'Stag' and approval for production. At that time

Triumph gave cars under development a four-letter code name (the Spitfire was Bomb, for example) but uniquely, in the Stag's case, the code name stuck.

Car companies did not usually introduce new models like this. Cars are developed according to a long-range master plan, but Triumph saw a chance to slot the Stag into a market segment where competition was limited mainly to the Mercedes 230 SL.



Triumph took that competition so seriously that it bought a Mercedes and studied it carefully in developing the Stag. Each car would have a removable steel hard top with a soft top stowed under a steel boot cover. Each would have independent rear suspension. Each would have a luxurious interior with available automatic transmission, air conditioning, and so forth. But where the Mercedes had a 2.3-litre inline-six, the Stag would have an all-new, 2.5-litre fuel-injected overhead-cam V-8 of thoroughly modern design.

The V-8 was not invented just for the Stag. The big engine was part of a series by engineer Lewis Dawtry to power all of Triumph's cars in the following years. The engines would share a common design, but shared very few parts, and ranged from 1500 cc for the smallest four cylinder to four litres for the largest V-8. The four-cylinder was developed first as a joint venture with SAAB, to be used in its 99 model, and some of the compromises required by the Swedish firm--namely the high-mounted, gear-driven water pump and the angled head studs--carried over to the V-8. These were contributing factors to the engine's problems that remain to this day.

Initially, Webster wanted the Stag to be launched with the 2.5-litre inline-six, which, in fuel injected form, he felt made plenty of power to guarantee acceptable performance. Others felt the V-8 was required from the outset to differentiate the Stag from its competition. When Triumph was merged into the monster that would become British Leyland in January of 1968, the Triumph V-8 was still far from ready, and it seemed reasonable to think the carmaker would instead use the 3.5-litre aluminium V-8 whose rights it obtained from General Motors two years previously.

A trial fit was ordered, but the results came back discouraging. Clearly, the Triumph engineers didn't try very hard, as a great many Rover V-8s have found their way into Stag bodies in the years since. Entire specialty shops configured their businesses around this swap, but there are other reasons why Triumph wanted its engine in the car.

Before the merger, Rover and Triumph were competitors, and this attitude persisted for some time afterwards. Additionally, Triumph projected sales of the Stag to be as high as 12,000 units per year, and there was no guarantee that Rover would

be able or willing to supply that many engines. By late 1968, Harry Webster was gone, reassigned to head up Austin-Morris, and Spencer King, formerly of Rover, had taken his place at Triumph. King did not ask for another test fit of the Rover V-8, and delays persisted for the Stag.

In 2.5-litre form, the V-8 was found lacking in low-end torque. Bosch D-Jetronic fuel injection helped this problem, but the fuel-injected engine could not be made to meet U.S. emissions standards. Instead, the engine was bored out to 3.0 litres and a pair of Zenith Stromberg carburettors were fitted, giving both the required torque and sufficiently low emissions. All Stags, no matter the market, would carry the Strombergs.

The Stag finally launched in the home market in 1970, but it was not long before troubles started. Engines overheated. Cylinder heads warped. Warranty costs rose. Up to 75 percent of 1971 Stags sold in America were claimed to have had their engines replaced. During development, cars were tested everywhere, from the heat of the Sahara to snowy mountain tops, where they all performed well.

But those cars had engines hand-built by Triumph engineers. Production engines had parts made more cheaply by foundries. At the time, the Stag's cylinder heads were the most complicated ever

made by the foundry industry and quality control was an issue. During development, the Stag engines had problems with the head gaskets, due to uneven forces applied by the Stag's angled head studs. A new head gasket was developed, but it was much more expensive. So a cheaper one was used instead.

Likewise, the high-mounted water pump, part of the SAAB legacy, worked well on the test bench, but in the real world, where owners did check the coolant every day, any leak could cause the level to go low, and the pump to seize with disastrous consequences. To make matters worse, there was a high temperature warning light on the Stag's multi-function display to alert the driver, but this lit up when it shouldn't. Triumph could not fix it. So the factory recommended that the light should be disconnected. The consequences were inevitable. When production of the Stag ended, so did production of the Triumph V-8. Intended to power Triumph's larger cars well into the future, it ended up in the Stag and nowhere else.

The Stag still has a strong group of enthusiasts in Britain. The Stag Owners Club has a membership of around 5,000, supported by a separate, non-profit business, the Stag Owners Club Tooling Fund Ltd., which makes parts to keep the cars on the road. Over the years, a many Stags have been repowered with different engines, from the Ford V-6 to small Chevrolet engines and the famed Rover V-8, but those cars with the original Triumph engine are most in demand. When carefully assembled and maintained, the Stag V-8 can be a reliable engine in its original form.

To keep those engines running and to make them more robust, firms have developed products to solve the Triumph V-8's failings. Most centre on the cooling system. They range from uprated radiators and header tanks, which replace the original low-mounted, leak-prone plastic bottle, to replacing the high-mounted, gear-driven water pump with an electric one, mounted lower down and off the engine.

Newer head gaskets with improved sealing characteristics, and higher-quality fasteners help prevent the head gasket failure. Timing chains, which once needed to be replaced every 25,000 miles can be renewed with high-strength chains for increased longevity. And for those with an aversion to carburettors, some have even fitted electronic fuel injection.

Through a small dedicated following determined to overcome the car's weaknesses, the Stag can be a satisfying and stylish drive that still turns heads.

Electric but not as you know it

BMW has committed itself to a wider vision of mobility that puts 'choice' first and foremost in the power of its vehicles. Officially known as their Power of Choice strategy, this customer-centric ambition sees research and development going into multiple drivetrains, including one powered by hydrogen fuel cell technology.

Klaus Frohlich, of BMW's Research and Development says, 'We are convinced that various powertrain systems will exist alongside one another in future, as there is no single solution that addresses the full range of customers' mobility requirements worldwide.'

Developing alternative powertrain technologies is a top priority for the BMW Group, which is working on hydrogen fuel cell technology in partnership with Toyota of Japan. BMW has given us the first virtual insights into the powertrain system for the BMW i Hydrogen NEXT, shown in the picture.

Hydrogen fuel cell technology could quite possibly become the fourth pillar of BMW's powertrain portfolio in the next few years in addition to diesel, petrol and the current conventional electric motors. The larger models in the BMW X range would make particularly suitable candidates for hydrogen fuel cell engines, according to Klaus Fröhlich.

There is no doubt as to the long-term potential of fuel cell powertrain systems, but BMW believes it may be some years before drivers are able to buy a car powered by hydrogen fuel cell technology. The main drawback is the lack of a supporting infrastructure, although some major oil companies consider hydrogen filling stations as the more practical alternative to electric charging stations when fossil fuels are banned. It would mean an extensive network of hydrogen filling stations, something

which is currently not feasible until a way is found of producing and transporting hydrogen safely.

In BMW's view, hydrogen as the supplier of energy must first be produced in sufficient quantities at a competitive price using green electricity. Initially, hydrogen will be used primarily for vehicles that cannot be electrified, such as long-distance heavy duty transport, since the sheer weight of the necessary battery electric power alone would make lorries uneconomic.

The fuel cell system for the powertrain for the BMW i Hydrogen NEXT generates up to 170 BHP of electric energy from the chemical reaction between hydrogen and oxygen from the ambient air,' explains Jurgen Guldner, BMW's Vice President of Hydrogen Fuel Cell Technology and Vehicle Projects. This means a vehicle's emissions from a hydrogen electric engine are nothing but water vapour.

The BMW SUV in the picture has two hydrogen fuel tanks (capable of withstanding almost five tons of pressure per square inch) that can together hold six kilograms of hydrogen. A great deal of effort has gone into ensuring the fuel tanks are crush proof in a crash to avoid any possible explosion. Just six kilograms of gas is enough to guarantee a long range, regardless of the weather conditions, and, most importantly, refuelling takes only three to four minutes.

The fifth-generation eDrive unit, set to make its debut in the BMW iX3, is also fully integrated into the BMW i Hydrogen NEXT. The total system output of 374 BHP fuels the typical driving performance for which BMWs are renowned.

BMW has been working with the Toyota on fuel cell technology since 2013. The two companies have joined forces to work on fuel cell powertrain systems in a range of sizes suitable for a variety of hydrogen fuel cell vehicles.

BMW and Toyota are not alone in pursuing this alternative route to the electrification of all motor vehicles. Since 2017, more than 80 leading companies in the energy, transport and industrial sectors have joined them in exploring the potential of hydrogen as the major replacement for fossil fuels.

Observation Post

With satnav, who needs a map?

Some years ago, a friend lent me a TomTom satnav device to use during one of our holidays in France. It had two immense advantages: it eradicated all in-car arguments about which road we should have taken and it allowed my wife to look at the countryside. Shortly after our return home, I went to Halfords and got my own plug-in satnav. My wife followed suit.

Most modern cars have built-in systems these days – although not all. Manufacturers offer updates to their systems and these are not always very cheap. Buying a Garmin or a TomTom usually includes a number of free downloadable updates.

My car's manufacturer regards a satnav system as an optional extra. The price is steep and updates are eye-watering. Fortunately, the original owner did not specify this option; unfortunately, he did not choose to have a Bluetooth connection either. So when I bought the car, I negotiated price to take account of these 'essentials'.

I went straight to an auto-electrician and asked him to install Bluetooth connection and a suitable screen complete with a reversing camera. I then abandoned Garmin and TomTom and downloaded Waze, which warns me about potholes, roadworks, congestion and the like. It really is excellent.

Paper maps

Despite all the convenience of satnav systems and apps, I still use maps. When I am planning routes, I like to get the big picture. Which roads do I want to use? Which junctions will I need to take? Are there some green routes which will compensate for the loss of motorway speed by adding to the pleasure of the drive?

If I am going to use a motorway, it helps to know before I start at which junction I will join and at which junction I will leave. It will also be good to be aware of what route diversions I can take if my previous choices are unavailable. What towns and road numbers should I make a note of, if Plan A has to be abandoned?

Maps are a huge help, and using different scales offers additional advantages. In the UK we are extremely fortunate to have Ordnance Survey maps, but A-to-Z city and town maps have their place too.

OS maps are extraordinary. They were originally produced for the Army so that commanders knew where the best lie of the land was for setting up their artillery (and later their tanks). It is amazing that anyone can obtain a map which on one sheet will show road, rail, river, village, town and city, church, pub, windmill, and sewage farm, ancient monument, burial site and battlefield, height and rate of incline of the land, all clearly marked and described to the highest military requirements.

I have a large collection of Michelin maps for trips through France, but they carry only some of the information that an OS map provides. The IGN series offers a little more detail than Michelin, but the maps are local rather than regional or national.

So what?

Over the past months opportunities for travel (rather than popping to the shop) have been greatly reduced; maps and apps have not been much used, I imagine. But I am dreaming of trips.

Ireland – wild and empty, beautiful and quiet. **Scotland** – the Highlands and Islands with amazing military roads through the glens and the routes around the western and northern coasts. **Germany** – perhaps for the Christmas markets. **Italy** – into the hills of Umbria and down to the eastern seaboard. **France** (*always* France) – with the wine routes, the remoteness of the Camargue and the Cevennes, the Alpine meadows south of Grenoble, the buzz of Toulouse, the little restaurants of Lyon, the beaches of the west.

I need maps, *my* maps. I am planning and, as we pack the car for our next journey, the maps will be close at hand to call to us in a way – even while we are *en route* – that not even my beloved Waze can approach.

Keep safe, go well. And when you have done, tell us your story in the *Newsletter*.

Paul Sheppy

****

Hybrids that go electric in cities

Smart hybrid cars that detect clean air zones and automatically switch to electric mode have been launched in Britain. London and Birmingham are among the cities that have been chosen to pioneer the new zero-emissions technology.

BMW's eDrive system aims to encourage emission-free driving in cities. The technology will gradually be fitted to all its hybrid models.

BMW wants smart cars to be exempt from the Government's ban of petrol, diesel and hybrid cars in 2035. It claims that hybrid cars can get drivers used to switching to electric. The eDrive system uses GPS to create a virtual border around a city's clean air zone, and once the car crosses this border, it automatically switches to electric

BMW's eDrive area in London covers the Ultra Low Emission Zone. In Birmingham it will cover the clean air zone which will be implemented next year. Initially the techology will be used in the hybrid 3 Series, 5 Series, 7 Series and the X5 SUV.

Spider engine spun at speed

Mazda may be the car maker most closely associated with rotary engines, but the Japanese brand did not pioneer the unconventional engine's use in a car. That accolade goes to a maker that is now nearly forgotten: NSU, which worked with inventor Felix Wankel to develop the small-but-formidable powerplant for car use.

Its breakthrough, rotary-powered car, the NSU Spider, was never really meant to be more than a rolling testbed for the engine, as well as a real-world advertisement for other automakers to be licensed to adopt the technology. As a sports car, the NSU Spider, built between 1965 and 1967, was not a commercial success, but as a car that gave a glimpse into an all-too-brief future of motoring, it was ground breaking.

Wankel never had the benefit of a formal technical education, but that proved to be of little consequence for the engineering genius. In 1922, at aged 22, Wankel began sketching ideas for a new type of engine, one with fewer moving parts and lacking the violent stop-and-go reciprocating motion of pistons and connecting rods in a conventional engine.

Designing such an engine from scratch proved to be a monumental task, and Wankel is said to have used an estimated 800 shapes and 150 configurations before settling on a single design. By 1936, Wankel had been granted his first patent for the engine, but, translating that into interest from car makers took decades longer.

NSU first took an interest in Wankel's engine design to power its motorcycles. In addition to being compact and light, the rotary engine produced power equivalent to a piston engine roughly twice its displacement and delivered its torque in a smooth and linear fashion. It did not take long for NSU to realise such an engine had applications for cars as well, and by the mid-1950s, work was underway to develop a version of the Wankel rotary engine for use in an NSU coupe.

While the rotary engine uses the same intake, compression, ignition, and exhaust cycles as a conventional four-stroke piston engine, its combustion chamber is an epitrochoid, a mathematical word for a complex shape involving circles and a triangle, and its 'piston equivalent' is a triangular-shaped rotor.

Filling in for piston rings of a conventional engine are the rotor's apex seals, necessary to maintain the compression needed to produce peak power. Failure of these apex seals was particularly problematic for NSU, and the company's solution to ensure long wear was to chromium plate the combustion chamber and use metal-impregnated rotor seals.

In the days before computer modelling, it was estimated that such an engine design would be reliable for approximately 50,000 miles. To further hedge its bets, NSU set the revs for Wankel's redline at an artificially low 6,000 rpm, but lacking parts, such as pushrods, camshafts, conventional valves, or rocker arms, the engine could be revved quite a bit beyond that mark without fear of damage.

When the car went into production form, the single-rotor 498-cc engine produced 50 BHP at the Spider's debut, but on its final year on sale that had risen to 54 BHP. Realising that a coupe with a soft top would get the rotary engine the most exposure, NSU chose to put the engine in a convertible, based on the rear-engine Bertone-styled NSU Sport Prinz Coupe.

The resulting NSU Spider was a small car, measuring just 141 inches from bumper to bumper, and only 60 inches across. (For reference, the original Mazda MX-5 Miata measured 155 inches in length and 66 inches across.)

Thanks in part to the rotary engine's light weight, the Spider tipped the scales at under 1,600 pounds, which helped the car deliver reasonable performance. Following the manufacturer's recommendations for shift points through all four gears, the run from 0-60 mph took 17.4 seconds, on the way to a top speed of 95 mph. One could drop the 0-60 time to 14.5 seconds by winding the engine out to 8,000 rpm, at the expense of

prematurely worn apex seals. At that engine speed, the acceleration may not be exhilarating, but the sound is akin to that of a rocket.

Underneath, the Spider used four-wheel independent suspension, consisting of coil springs, shock absorbers, unequal-length A-arms, and an anti-roll bar up front, with semi-trailing A-arms in the rear. The 12-inch wheels were stopped by front disc and rear drum brakes.

The Spider was well-equipped by sports car standards of the day. Side windows rolled up, and were made of glass, not transparent plastic. Seats were comfortable and well-padded, and the compact rotary engine allowed the Spider to offer both front and rear trunk spaces. While the soft-top was standard, buyers could also opt for an accessory hardtop to further extend the NSU's functionality in cold climates.

In the primary market of the United States, the Spider was priced at less than $3,000 (equivalent to under £20,000 today), making it comparable to an MGA or Triumph TR4. As the rotary engine was still an unproven commodity, few consumers were eager to act as unpaid testers for the NSU factory, and dealers sold only 215 in the U.S. market.

Worldwide, sales totalled 2,372 over the car's three years of production, but that was enough for NSU to introduce a more powerful rotary-engine saloon called the NSU Ro80 for the 1967 model year. Though it earned the *Car of the Year* award in Europe in 1967, problems with apex seal failures continued to dog NSU, driving up the car makers warranty costs.

With both profits and reserves dwindling, NSU and Auto Union were acquired by Volkswagen in 1969, then merged into the brand we know today as Audi.

The Figures

Engine: 498-cc single-rotor Wankel
BHP: 50 @ 6,000 rpm
Torque: 53 lb-ft @ 2,500 rpm
Transmission:
Four-speed manual transaxle with floor shift
Suspension:
Coil-spring independent; unequal-length A-arms (front), semi-trailing A-arms (rear)
Brakes: Four-wheel hydraulic; 9-inch discs (front), 7.1-inch drums (rear)
Wheelbase: 79.5 inches
Length: 11ft.8.8 inches
Cars made: 2,372

60 limit on some roadworks

By increasing the speed limit to 60 mph on certain sections of temporary motorway roadworks journey times have been shortened and drivers feel less stressed as people are less likely to tailgate and commit other acts of aggressive driving, according to research. Highways England announced that the typical 50 mph speed limit will increase by 10 mph only where safe to do so after a series of successful trials. Where roadworks are considered permanent, or ongoing, the limit will stay at 50 mph.

The decision was made after tests showed the safety of motorists and road workers at various road projects was not put at risk by a 60 mph speed limit. Trials across eight sites found that journey times reduced between eight to 14 per cent while drivers collectively saved an average of almost 3,780 hours of driving each day.

Although average speeds increased, more motorists were found to stay within the speed limit when it was increased to 60 mph. At one pilot scheme – the M1 between junctions 13 and 16 – drivers typically shaved 68 seconds off their journeys due to the increased limit. The 60 mph trials assessed safety across different 'scenarios' within England's strategic road network of motorways and major A roads.

Jim O'Sullivan, Highways England Chief Executive, said, 'All of our research shows that road users benefit from 60 mph limits in roadworks. They have shorter journey times and feel safe. We have a huge programme of work planned. So being able to use 60 mph where safe to do so will continue to improve everybody's experience of our roads.'

Stretches of the M1, M4, M6 and M20 have previously enforced 50 mph limits for smart motorway upgrade works for several years. Some sets of roadworks will continue to use 40 mph and 50 mph speed limits because of the road layout and the nature of work being completed.

Nicholas Lyes, head of roads policy at the RAC, who sits on the Government's Motorists Forum sub-group on roadworks, said, 'Highways England has carried out extensive trialling of higher speed limits on some stretches of motorway where roadworks are in place and has found that as well as improving efficiency, there is no impact upon road safety. Moreover, drivers actually feel safer with a slightly higher limit. A targeted rise in speed limits through roadworks is a step forward.'

Rebecca Ashton, of road safety charity IAM RoadSmart, said, 'Previous research showed that drivers felt less stressed when the speed limit was increased in motorway roadworks. Allowing cars to travel at 60 mph will help to separate traffic, avoid bunching, and give a quicker and less stressful journey.

Have you ever owned a Greeves?

The British company Greeves has an interesting history, and you can tell by looking at the front suspension of the bike in the picture. They also made interesting motorcycles. Theirs was an usual route via building transport for disabled people and then branching out into motorcycles.

This particular example of a 1969 Greeves Ranger was advertised on eBay by a seller in Tucson, Arizona, a few thousand miles out of our Thames Valley area. There is an opening bid price of $2,200 (that is around £1,770 in our money) on the bike and, rather surprisingly, no reserve.

Bert Greeves was mowing his lawn one day when he came up with the idea of putting a petrol-powered engine on a relative's wheelchair to help them get around and he came up with the Invacar. After getting a British Government contract to build the Invacar, he was off and the business became a success. The Invacar company still makes mobility scooters at its factory in Bridgend, Wales, and has also a built new factory in Germany to meet demand.

Being interested in motorcycles and a good trials rider himself, Greeves started building motorcycles with Villiers engines and another successful business was born.

This Ranger is original, so far as the eBay seller knows, other than the chain guard which is missing and the rear tyre has been replaced. Greeves reportedly started out with three models in the early-1950s, and by 1962 there were 11 different motorcycle models.

The Ranger was made for export to the United States, or with that market in mind. There are conflicting reports on just how many were made and how many were exported to America.

The engine is a 246cc Villiers single-cylinder, and the seller claims that it starts well, gears shift as they should, and stops well. The original carburettor was changed to the Mikuni as seen here, but the original Villers carburettor goes with the sale. The price seems a bit low for a fine vintage machine, but the market will always decide what something is really worth.

Have any of you in the Thames Valley Group ever owned a Greeves motorcycle?

Safety can lead to bad driving

Most cars today include a range of driver assistance features and safety aids. Many come as standard, but some so-called upmarket brands charge extra for them. Are they all worth having? Researchers at the Virginia Tech Transport Institute in the United States have found that reliance on these safety systems can lead to poor driving habits and driver inattention, despite car handbooks reminding drivers that irrespective of whatever safety devices are added to the car, the driver must remain in control and responsible for the car at all times.

The research highlights how drivers' behaviour changes based on the technology in their cars. Rather alarming is the discovery that some drivers spend almost a of third of their time with their eyes diverted from the road ahead.

Most new cars have features that relieve the monotonous parts of driving by automating some of the tasks, which is supposed to alleviate stress during long motorway trips or stop-start traffic. Adaptive cruise control, which is gradually replacing the standard cruise control, enables the car to maintain its speed at a set distance from the car ahead of it, while lane-keeping assistance maintains a car's position within a lane.Some camera-operated lane keeping systems will keep the car in the centre of its lane automatically without any driver input. Others vibrate either side of the steering wheel to nudge the driver into correcting the car's position. It effectively means that on the motorway you have to use your indicator to change lanes to avoid being nudged, even if there is no one to signal to.

These features are made possible with advanced cameras and radar technology, and some systems are becoming so advanced that some cars can make lane changes, or hold a stopped position in traffic for 30 seconds and get going again without driver intervention. These systems are supposed to help drivers focus by reducing fatigue but still require them to pay full attention to the road and their surroundings. Unfortunately, many drivers using these aids have failed to read the words of caution in their car's handbook, which reminds them of their responsibility.

On the positive side, the American Insurance Institute for Highway Safety has noted up to a 37 per cent reduction in injury claims from cars equipped with similar levels of advanced driver assistance systems. Other plus points the Virginia Tech

report were that drivers using these systems made few driving errors such as an improper turn or not signalling.

On the other hand, users of these systems were more likely to speed and engage in what the researchers called 'judgment errors.' Drivers who used these features were also nearly twice more likely to perform 'secondary tasks' either visually, manually, or both. These tasks have nothing to do with driving the car, but could include checking or operating a phone.

The study found that when the driver's aids were active, some drivers spent about 30 per cent of the time with their eyes away from the road ahead. These glances away from the road happened more frequently and for longer periods than when the systems were not active and the driver needed more input in controlling the car.

Triumph's better electric motorcycle

The main difficulty in producing an electric motorcycle is making a battery that is light enough with sufficient power to last for an adequate number of miles without recharging. That is the project currently being worked on by Williams Advanced Engineering in partnership with Triumph Motorcycles, Integral Powertrain and others at Warwick University.

Designated TE-1, the electric motorbike project is now halfway through its two-year development schedule. Led by Triumph, which is responsible for integration of all technology, it is a project in which Williams, with its motor racing experience in Formula E, has responsibility for the lightweight battery design and pack. Integral Powertrain's e-Drive division is leading the development of the powerful electric motors.

Reducing battery size and weight are vital targets for TE-1's success. By altering the chemical technology, the size of the battery cells and paying attention to the necessary cooling, it is estimated that the new battery, with a weight of around 761lb, will lead to an increase in useable energy of 70 per cent compared to conventional battery systems.

Electrifying motorcycles brings an additional challenge to the researchers, how to replace what they call the 'aural signature'. Some companies have investigated fake sound, but the TE-1, although destined for a high performance bike, will remain silent for the moment.

Stay alert, think, save lives!

You will be familiar with the saying, *looking but not seeing*. I made this mistake when crossing a quiet village road on foot one morning. I scanned for vehicles and, when sure that the road was clear, stepped out in front of a cyclist wearing fluorescent Day-Glo clothing with a lit LED headlamp. I had not seen him. No harm was done, but it made me question my observation and try to understand what had happened.

'Inattentional blindness' is a form of 'blindness' where we fail to notice 'plain sight' events. In Australia motorcyclists are 30 times more likely to be killed than car drivers, despite being on the road only one per cent of the time compared to drivers. One of the biggest causes of the death is when a car driver changes lanes or pulls out into traffic and into the path of a motorcyclist.

When questioned, drivers usually said that they *'had not seen the motorcyclist'*. Tests were carried out at a Canberra university, and in one experiment in, 65 per cent of drivers failed to see a motorcyclist, but only 31 per cent failed to see a taxi in the same circumstances. The researchers concluded that motorists tend to look for cars and mentally give other road users a lower priority.

In another experiment in the USA, a group was shown a basketball game and was asked to count the number of passes or the type of passes made. In some games a man, dressed as a gorilla, walked through the players and, when asked if anything unusual had occurred during the game, half of them failed to mention the gorilla.

So what's going on? Suggestions have been made that the driver is concentrating on other things, such as tuning the radio or focussing on overtaking. It has also been attributed to seeing something but immediately forgetting to act on it. Thirdly, it could be a failure to act because of over reliance on previous experience in similar situations. There are also physiological aspects that can lead to not seeing, such as when light levels change rapidly from bright to dark when we all become temporarily 'blind'.

Being tired, feeling unwell, being late for an appointment, driving in challenging weather, having three teenagers arguing with you and each other, changing the radio station, being in a bad mood, the list is endless, and all can lead to that momentary lack of concentration when we are all susceptible to inattentional blindness.

So while we may not be able to avoid every situation that can lead to this phenomenon of 'inattentional blindness', it is worth noting that none of us is immune, and we need to maintain constant guard with concentration being the key that enables us to lock away many of the risks.

Keith Pruden

Fancy a bike with 200 BHP?

It would seem that for some bikers, taking a leaf out the motorists' book is everything. Just as some car drivers are obsessed with power and engine size, it seems that to some motorcyclists BHP is everything. So leaving aside monster beasts such as the Kawasaki NinjaH23 and the BMW HP4 RACE, built for the track, there are still few more affordable bikes that produce the coveted 200 BHP. That HP4 from BMW, incidentally, is £68,000!

The original BMW S1000RR amazed the biker world when suddenly the ordinary motorcyclist with deep enough pockets could go out and buy a motorcycle with nearly 200 BHP. In 2010, the S1000RR was faster than any other ordinary road motorcycle on the road. Over the past 10 years the power has only slightly increased since the original model. The S1000RR has since lost its crown to more powerful rivals, but even if it does lack BHP it remains a favourite for its simplicity of control in fast riding.

The Kawasaki H2 SX is basically the sports touring version of the Ninja H2. But this is no ordinary sports tourer. It produces the same amount of power as the ZX-10R with more torque lower down in the rev range by copying what car makers do for that necessary boost. Add a supercharger, and it is that supercharger which gives the Kawasaki its turn of speed.

The Suzuki, rather like its motoring counterparts had one unique selling point. It was cheaper than many of its rivals. A Suzuki GSXR might have been something of a bargain, but it was low down on the superbike league in terms of performance. So who could have forecast in 2017 that Suzuki would produce a 200 BHP monster? The new GSXR 1000 has been praised in all the test reports, and the R version has all the electric aids you are ever likely to need. All that is required now is something to be done about the sound from that exhaust.

The Aprilia RSV4 RF is not a bike you would expect to find in such exalted company. The Aprilia has never been sold on its power. It was the sensible choice and always valued more for its excellent brakes, suspension and handling over its amazing acceleration. But all those jibes about the RSV4 lacking power ended when in 2015 the RSV4 joined the 200 BHP family, finally giving the bike the flexibility of extra power when it was needed most.

If anyone in the Motorcycle Section has ideas on the power of bikes, let's have them by writing to the Newsletter.

Future may not just be electric

Compressed natural gas has much to offer as a clean internal combustion engine fuel, according to Mahle Powertrain, whose revolutionary hybrid engines were featured in last winter's *Newsletter.* The company, one of the world's largest component makers, has six factories and offices in Britain alone. As CO2 emission standards continue to tighten, the future of the internal combustion engine may depend on alternative fuels.

As motor makers seek engines offering the convenience and performance similar to petrol or diesel, without radical changes to the basic structure of a car, some experts say it is time to re-consider the gaseous-fuel alternative.

The car companies have rejected compressed natural gas and liquified natural gas, preferring hybridisation as a stepping stone to full electrification. Those fuels were discarded from use 'because their benefits have been compromised by dual-fuel installations that require the engine to also operate on petrol,' argues Mike Bassett, chief engineer for Research at Mahle Powertrain.

To demonstrate compressed natural gas's full potential, Bassett's team has developed a demonstration vehicle running purely on compressed natural gas. The company's tests show a 50 per cent reduction in CO2 emissions at peak power and 20 to 40 per cent in the real driving emissions range used now in Europe to classified all new cars.

Compressed natural gas scores over conventional fuels through its chemical make-up of a very short molecular carbon chain that reduces the C02 produced. It also has a higher knock resistance rating (over 120 RON) that permits very high compression ratios, above 13:1 on Mahle's turbocharged Di3 direct-injected, three-cylinder concept engine. There are other advantages. Because a gaseous fuel mixes more readily with intake air, particulate emissions that require costly after treatment on both diesel and petrol engines are largely eliminated.

An engine designed specifically for being fuelled by compressed natural gas needs the robustness typically found in a diesel, combined with the ability to reach the permitted rev limits of a petrol engine, since higher cylinder pressures can be generated operating on natural gas instead of petrol. The combustion speed of compressed natural gas does not limit engine revs in the way it does for a diesel, Bassett explained.

The currently available components for direct injection have to be tailored for compressed natural gas CNG operation. All of this underlines why dual fuel engines are compromised. Compared to the investment required to switch the manufacture of cars over to electric propulsion, the change to compressed natural gas as an interim fuel solution would be 'relatively straightforward' in countries with an existing national gas distribution network , according to Mahle's Mike Bassett.

What's On - 2020

MONTH	Committee/Tutors	All Full & Associate Members

Due to Government restrictions on gatherings no car events are currently planned. When the situation changes we will notify members by email and the website.

PLEASE CHECK THE WEBSITE REGULARLY TO AVOID DISAPPOINTMENT

NOTES :

1. Car training is currently very limited due to the constraints of operating under the Covid-19 restrictions. However new Associates may join at any time by contacting the Membership Secretary.
   For further information on car training please contact the car training officer at :- car-training@roadartvg.org.uk
   (However, restrictions on motorcycle gatherings have been eased :- see NOTES 3-5)
2. Please note that Guests (potential members?) Are usually welcome at our events, once they re-start. Any exclusions or charges will be made clear before booking.
3. Motorcycle Training was resumed in June with the lowering of government restrictions and in response to up-dated advice from RoSPA HQ, albeit with very close attention to the need for social distancing and overall attention to keeping safe.
4. RoSPA also resumed offering Motorcycle Testing in July, but with the considerable back log they will be working through, this is liable to be restricted for some time to come.
5. After a trial ride in August for Tutors only, we have established that motorcycle monthly Social Rides are again feasible. Currently we need to work within the restriction of a maximum of 6 participants riding together, although we can duplicate this with additional ride leaders. The initial open-to-all ride is currently being planned for September 5th. Anyone interested should check the usual Events page on the website, TVG Facebook page or contact Tim Cuell for more information.

****

In case of changes please refer to the website for latest information.

Your contributions to the Newsletter either 'Letters to The Editor' or articles of interest to members are always welcome. Please send them to The Editor, Max Davidson ...editor@roadartvg.org.uk

REMINDER

The Newsletter is also available online at www.roadartvg.org.uk

Those of you without access to the Internet will still receive a printed copy.

Published by
RoSPA Advanced Drivers and Riders Thames Valley Group
e-mail: *secretary@roadartvg.org.uk*
Website: www.roadartvg.org.uk

General correspondence should be addressed to :
RoADAR Thames Valley Group

FACEBOOK: https://www.facebook.com/roadarthamesvalley

TWITTER: https://twitter.com/TVGRoADAR

INSTAGRAM: https://www.instagram.com/roadartvg

Forum Coming soon !

N.B.
Committee e-mail addresses are: xxxxxxxx@roadartvg.org.uk
Where 'xxxxxxxx' = committee post.