

ROSPA

Advanced Drivers and Riders West Yorkshire



Drivers

Torque

Summer 2021

Meet the Roadcraft Practitioner



MENTAL
HEALTH
MOTORBIKE

Riders

From the Editor

We aren't quite back to normal yet but we are well on the way. You should have all received the pdf documents outlining the group training activity schedule and the leaflet, *Sanitising your car*, which were distributed in early March and revised in May, on behalf of the committee. The motorcyclists have been able to recommence their training and ride-outs in line with government guidance, and the car tutors were obviously slower off the mark because of the close confines in the car. I can report that not all tutors have had both doses of the vaccine yet so any tutoring should only take place if all parties agree.

I have run out of examiners to badger for an article but Michael Collins, an ex-colleague and now a *Roadcraft* practitioner gives us an insight into his history on page 3. The meet the tutor article on page 10, now a regular feature, is from committee member Andy Twaites. I am pleased my article in the Spring Torque about the Corsa-e prompted a conversation with Robin Baker, an electric car convert, and his article is on pages 4 and 5.

I should also thank Dave Robertshaw, for his regular contributions and obviously loves his cars. It could be said the only time his wife knows it is him coming home, is when she doesn't recognize the car pulling into the drive.

The first group meeting in July, is planned to be a purely social one where members, old and new, can meet with the committee and tutors. Refreshments will be provided so please come along and enjoy the evening.

Keep doing your lateral flow tests and more importantly register the result at www.gov.uk

You can email articles to torque@wyg-roadar.org.uk

Our group meetings held on the fourth Tuesday of each month at the Miners Welfare Hall, Main Street, Garforth are well received. Although they are currently not being held, you can look forward to next year's programme as there may be something of interest and the bonus of free refreshments. I am looking for members who attend to write about the presentation. Please let me know if you are able to assist. www.wyg-roadar.org.uk

SUMMER 2021



Martin Jones



2021 Committee

Chairman	Mike Suggitt
Secretary	Nigel Storey
Treasurer	Peter Stirk
Car Training Officer	Mike Bell
Bike Training Officer	Pete Fenlon
Member	Rob Hall
Member	Andy Twaites
Member	Jon Taylor
Member	Andy Richardson
Member	Dave Green
Member	Tony Baker
Member	Richard Hirst
Member	Sue Speight
Member	Martin Jones

The Committee of West Yorkshire RoADAR is not responsible for any article or letter contained within this newsletter. All views expressed are those of the individual concerned and do not necessarily imply agreement of the committee or of RoADAR. The editor reserves the right to alter or amend any article.

If you have suggestions or items for the committee you can contact the chairman

chair@wyg-roadar.org.uk



Check out our group Facebook page, like and share it with your friends and also visit the National RoADAR page.

Meet the *Roadcraft* Practitioner - Michael Collins

Mick and I are ex-colleagues and we have crossed paths during the course of duty on many occasions.



Let me see. Where did it all start? I joined the West Yorkshire Metropolitan Police (as it was then known) on the 4th February 1980. That would have put me out operationally at the good old Gipton police station, Leeds, sometime in May of that year as a naïve young 19-year-old, and that is probably when I first met your editor, Martin! (Life was a lot simpler with accident units.)

My parents had never owned a car so I joined the police as a non-driver, and was lucky enough to do so at a time when the police ran five-week learner courses (they paid you to do it rather than the other way round). These courses were like gold dust so you did have to wait your turn, but I attended and passed my course in the December of 1981 and was straight into what is now known as response driving. Nothing like starting a driving career in the deep end! And so the journey began ... because with hindsight I can say that I became the ultimate product of *Roadcraft* and the police way of driving as, having known no other way, I now sit on the Standing Advisory Board of *Roadcraft*.

So how did I get there? Well, right from the start, as a young beat bobby, we were expected to deal with road accidents as only the serious ones got the attention of traffic cops. Ever wondered where the phrase "I'll leave it with you, kid" came from? In those days, we had small accident booklets to complete, (*HO/RT 5's* if I remember correctly, Martin), and right from those very beginnings I had an interest in how to complete them properly and what happened to them after they were completed. That's when I will have met Martin. First impressions can also play a big part in the way things go, and my very first day on duty was a late turn accompanying Gipton's incident car driver, Reg Whitworth, an incident car basically being the divisional traffic car. That said, and I'm sure this will have been done on purpose, the first crime I took a report of was for theft of garden gnomes from a garden in Seacroft! Yes, Reg did have a smile on his face.

Anyway, interest piqued, I enjoyed and I had a forte for dealing with road-related incidents, and in 1984 I came to the attention of the divisional traffic department, joining them at the end of 1984 as an aide, or what my new sergeant, Dave Hirst, would call a 'not even an amoeba'! (It took a few months to prove enough worth to be an amoeba.)

By the autumn of 1985 I was a fully trained (and fully grown) qualified traffic cop, and remained so for 20 years of my career. Coincidentally, one of my traffic-law trainers was a certain Mr K. Sharp, whilst passing my advanced police driving course was one of my proudest moments. Those 20 years took in 4 years at Gipton, 8 years on the motorway unit and 8 years at Weetwood. I was fortunate enough to always be seen as a hard worker and, therefore, I only ever moved when I found myself becoming a bit stale and asked for a move, rather than having a move foisted on me.

I can honestly say I enjoyed the whole of my career, but those 20 years were the special years despite them coinciding with the slow degradation of roads-policing departments as they were seen to be less and less important. My 8 years on the motorway unit were probably the last of the bastions of roads policing as we were expected to concentrate fully on that task with no other policing distractions. Mine were spent working out of Wetherby police station covering the A1, which was classed as part of the network despite it not actually being a motorway at that time. (Or, as was indelibly imprinted in my mind from numerous written reports, The A1, London to Edinburgh to Thurso Trunk Road).

Then, after 25 years' service and those 20 on traffic, I decided to do something that I had always fancied but the time had never been right. I applied for and got a job in Driver Training. I took to that like a duck to water and rapidly flew up the ranks to become a trainer of driver trainers. The speed of my progress was definitely aided by the experience and skills I had honed during my 20-year traffic cop career.

Now as most people will know, joining the police when I did meant I had signed up for 30 years. With 18 months to go, an opportunity arose to become a traffic-law trainer and so, following in Kevin's footsteps, that is what I became. I remained responsible for training new driver trainers, whilst teaching traffic law and forensic collision investigation, which I had become qualified in in 1990. My one regret, at the time, was that these last 5 years were not long enough, but the Gods were smiling on me as with just months to go to retirement, I was asked if I would carry on doing exactly what I was if they civilianised my post. So, on Friday 5th February 2010 I was teaching in uniform, and on Monday 8th I was doing exactly the same in civilian clothing. No rest for the wicked!

I carried on for another 9 years during which time I became more and more involved with National work in the roads policing arena, including becoming a member of the *Roadcraft* Practitioners group responsible for the 2013 rewrite of that esteemed publication. Well, after 30-odd years some knowledge has got to stick!

Then, in 2018 the College of Policing advertised for a Roads Policing Advisor, which appealed because of the National work I was doing. That and, after 39 years, it was to work part-time from home! So, I applied, got it and here I am. The College subject matter expert on all things roads policing (liaising with National Leads and the Home Office amongst others) and a member of the Standing Advisory Board for *Roadcraft*. From one end to the other, literally.



My favourite car to drive in my career? Easy, the Vauxhall Senator. A high-performance car which I consider to be before its time, as the only car I have driven to match it, from a police perspective, is the BMW 530.



The worst? I'm sorry Martin, THAT Mini Metro, why oh why, followed by the Morris Ital with a dash shaped like a drinks cabinet and it drove like one!

Now, as I come to the end of my career, recommendations have been made to restore credibility and credence to roads policing. At long last!

My final pieces of work will be to reinstate suitable training, creating a pathway to accredit those officers who specialise in serious collision investigation, and ensuring safety training is given to officers when involved in roads-related incidents. Not a bad way to finish. October 7th if you're interested!

And it's all gone in the blink of an eye!

The Corsa-e article in the Spring edition of Torque prompted group member Robin Baker to respond.

The world of electric vehicles (EVs) is full of opinion(s), misinformation and doubt around range. To help anyone thinking of making the transition from fossil fuels to electric I thought it might be useful to share our story...

Firstly, I should state that both my wife and I now drive fully electric cars (BEVs – battery electric vehicles). I drive a BEV as my work vehicle, travelling more than 25,000 miles per annum, and my wife uses her BEV to commute between our house in Yorkshire and our second home in Berkshire (145 miles each way).

So how did our journey to 'EV joy' start and end? I'll try to tell you in a chronological way starting at the beginning.

In late 2015, my company car was up for renewal. Although this vehicle was a 'perk', I hated paying more tax than I needed to. My solution was to order a Mercedes C-Class plug-in hybrid electric vehicle (commonly referred to as PHEVs).

My summary of the Mercedes PHEV was it halved my company car tax bill (always welcome), it was fast, it was (very) well equipped and when it ran on electric only (albeit only for around 18 miles or so) it was super quiet. The downside was that when the electric ran out you were in effect driving a petrol-powered car that weighed more than a 'normal' one and as a result it wasn't very economical (25–30 mpg at best). Another benefit of making this change was that the Government massively subsidised the installation of a 7kW home charger. Little did I know then how much this would be used in the future.

Although the Mercedes never made its way into my heart, like some vehicles do, I really (really) liked it when it ran on electric only and this got me curious about EVs.

In late 2017, I decided to take a period of semi-retirement and although I could have kept the Mercedes until the end of the lease period, I didn't want to pay the tax (the Yorkshireman in me) so I handed it back.

At the time, my wife was running a Range Rover Sport (yes, I can hear all the groans of disapproval), and the decision was made to try an EV so we purchased an electric BMW i3. This was the vehicle that converted us to EVs. Why?

I'll start with the cost – the Range Rover cost around 22 pence per mile (27 mpg at £6 per gallon) in fuel versus the BMW i3 which cost around 3 pence per mile (12p per kWh on our home tariff at 4 mpkW). That's a world of difference!

Now, I know you can't really compare these two vehicles but what I can tell you is that any EV car is smooth (they don't have traditional gearboxes so there are no gear changes), quiet (on another level type of quiet), and just more relaxing. When you drive an EV it seems counter-intuitive to drive it any way other than smoothly and serenely.

Both my wife and I absolutely fell in love with this quirky, alternatively powered, little vehicle and we went everywhere in it, and it soon took its place as our first car whilst the Range Rover was literally parked on the drive and only used for journeys longer than 120 miles.

Could we do long trips in the BMW i3 when it only had a range of around 125 miles? We managed to do a short trip around the UK of around 500 miles, and with a little planning, as well as a bit of luck, we paid zero (absolutely nothing) for the electric 'fuel'!

In the middle of 2019, I decided to return to work and took a nine-month assignment, approximately 50 miles from my home, and I needed a car to get me there and for occasional business use. My wife wouldn't give up the BMW i3 as she had fully 'claimed it' as hers and the Range Rover was inappropriate.

My badly thought-out solution was to buy a Porsche Macan ... What a huge mistake! Not only was it an awful car (I won't bore you as to why) but it had a ride hard enough to have my chiropractor on speed dial. I was also spending around £450 per month just to go to work and back!

The Porsche was replaced with a Jaguar I-Pace EV. The I-Pace had a real-world range of around 220 miles and the monthly cost for my commute in electric 'fuel' was £90 on our electric bill – a £360 per month saving.

The I-Pace was a great car. It was fast and very clever (especially the driver assist mode) but it wasn't super reliable, sadly. Strangely, the problems we had with it weren't related to it being an EV either as they were all 'mechanical' issues.

There was also a kind of irony to running the I-Pace. I would say it was a first-class car that had to rely on a third-class charging infrastructure. Running it within its real-world range was fine but as soon as you took it outside of this 'bubble' you were relying on the public charging network. The public charging network is sometimes unreliable, subject to a queue at busy times and 'complicated' (different apps for different networks).

Why we have gone all electric

However, it is getting better, faster and simpler at very fast rate thanks to more demand and increased competition.

As ever, our life changed again with me taking a role based out of Luton, which necessitated us taking a second house in Berkshire. Having made the conscious decision to never move away from EVs, we now needed vehicles to suit our busy lives.



I now drive a Tesla Model 3 Performance, and it is without doubt the best car I have ever had. I don't want to sound like a Tesla fanboy (I'm not) but it is the only EV on sale that offers an integrated charging solution via its dedicated network of Superchargers. You can travel further in a Tesla than other EVs, charge faster and it's also cheaper to charge than on the public charger network. You simply pull up (the car pre-heats itself automatically), plug it in and get billed. The charging speed is also very quick. It typically recharges at a rate of 550 miles per hour (often higher) whilst connected. As a comparison, the best speed of charge I ever (ever) saw on the I-Pace was 200 miles per hour whilst connected.



My wife is often driving between our two houses and now drives a Volkswagen ID.3. It has a real-world driving range of around 200 miles so with home charging this is more than achievable.

If anyone needs any further info or assistance in making the change to an EV, please don't hesitate to reach out.

If you are considering making the switch to an electric vehicle, Robin offers further information on page 5.

Don't be camera shy!

Failing that, the vehicle must have an undamaged rear-view mirror in place, and also a working offside mirror. Mirrors which are intact must also be in a position which makes the road behind visible to the motorist. A driver will be in danger of being stopped by police if they have no offside mirror, as well as being at a higher risk of suffering personal injury in a crash or causing someone else harm due to having restricted view of their surroundings. A car without a offside mirror will also fail an MOT. The words 'device for indirect vision' have now been added to the regulations, and both camera and screen for each device must be checked and working at an MOT.

Cameras in cars are becoming more prevalent as new cars are being fitted with more, for a variety of reasons. Most of us will have a car with a reversing camera, which we all know is just an aid to carrying out reverse manoeuvres but one we come to rely upon. Some cars also have cameras to the front and under the door mirrors and the images are stitched together and superimposed over a picture of the car, creating a 360° aerial view on the screen in the car, making the manoeuvre even safer.

Some vehicles are having not only the interi-



or mirror replaced by a camera but also the door mirrors. What used to be seen outside the car is now viewed on screens on the inside, with manufacturers claiming the driver's side vision is enhanced by making the images clearer and easier to see, in all weather. They also claim the absence of side mirrors has the benefits of reducing vehicle drag and minimising the noise caused by mirrors. Has either of those two reasons actually ever been a problem to anyone? I do know there are still blind spots and the main issue in my opinion is this will take information away from the other road users. No longer seeing the driver's action or reaction in the door mirror will make some manoeuvres less safe.

Of course the law has had to be changed.



According to the Construction and Use Regulations 1986, all vehicles must have at least two mirrors unless they were first used *before* 1st June 1978 (in which case one is sufficient). If the rear-view mirror is obscured, then a vehicle first used *after* 1st June 1978 must have both of its side mirrors intact.

Cadillac's new CT5 compact sedan has a hands-free driving assistant that can navigate most U.S. highways on its own as long as the driver remains attentive so there is a camera mounted on top of the steering column to monitor the driver's awareness. BMW has an optional driver-monitoring system in its latest model X5 which has a camera mounted in its digital dashboard to make sure the driver is paying attention. Not to be outdone, Tesla has cameras both internally and eight externally, to give 360° of visibility. Some of the data and images never leave the vehicle but some manufacturers collect it to use for future innovations.

On the road, the images and data can be used for many reasons. The Kia K900 has 16 cameras and sensors used to eliminate blind spots displayed on the digital dashboard. The 2019 Mercedes-Benz GLS uses forward-scanning cameras and mapping data to tilt the car into corners for a smoother ride on and off road. Volvo is to install in-cabin cameras in all its vehicles as they believe intoxication and distraction of the driver should be addressed and the car can then intervene.

It is estimated 25% of motorists already have dash cams installed to their vehicles and the benefits of this are obvious, with insurers using footage to dispute claims or make counterclaims. The footage also makes great TV programmes.

The National Dash Cam Safety Portal (NDSP) is a new resource and allows motorists to send footage to the relevant police force together with a police report if they have recorded an incident or reckless driving on their dash cam. This can be accepted as evidence but drivers should beware that if you submit dash cam footage you will have to give a statement and may have to be a witness in court.

I have had cameras to both front and rear in my car recording constantly for the last three years and I have recorded some useful snippets to use for training purposes. The most common is the frustrated driver coming up from behind who obviously can't stand the fact I am leaving a safe gap in front.

I have recorded motorists gesticulating at me to move forward or banging the steering wheel in obvious frustration. I have also recorded motorists committing offences which I show to associates to highlight training points.



Recordings can also have the benefit of demonstrating how to and how not to overtake. I am sure many motorcyclists have helmet cameras fitted for similar reasons. Not surprisingly, some car manufacturers are factory fitting dash cams as standard equipment.

THINKING OF MAKING THE SWITCH?

Robin Baker certainly has some great points to make about Electric Vehicles and he wants to deal with a few myths:-

Range Anxiety – My view is simple. Most EVs now have a minimum range of around two hundred miles. At my age, this is a greater range than my bladder! So as long as I can 'take a break' and recharge my car whilst grabbing a cup of coffee, my EV will be 'good to go'.

Running Cost(s) – As a 'rough cut' calculation (depending on where you charge), the cost of running an EV will be around 20 to 25 percent of the cost for an equivalent fossil-fuelled vehicle.

Home Charging – Get a charger (the Government will subsidise it) and treat your EV like your phone. Plug it in every night (on a cheaper tariff) and it will be full in the morning.



Do Your Research – The type of EV you buy needs to fit how you *really* use your car. Research the facts and don't listen to those EV haters.

Don't Be Afraid – If EVs fit your real needs and you make the change, you will never ever go back.



Seasonal Swede

Dave Robertshaw



A C30? Hmm, which one's that then? A pretty-standard response when I tell people what car I'm driving now. I do like an underdog, especially a forgotten one, and the Volvo C30 certainly appeared to be one of those.

So how did I end up with a C30 on my driveway? The Volvo V50 estates from the carpool at work that I drove a decade or so ago probably started things off as they always felt like very agreeable cars. The C30 is basically the coupe version of the V50, both of which owe their existence to the better-known S40 saloon. Just to complicate things, there's also a C70 convertible that completes the family. Volvo's naming convention at the time probably didn't help the average buyer's identification of these cars...

Anyway, reading a back issue of *Autocar* magazine over the summer, I happened across a road test of the C30, which summarised it as an 'interesting but ultimately flawed' car. Classic underdog. I was hooked.

I also liked some of the different design features of the C30. Not many cars have a glass tailgate. Not many cars have an interior designed around the laughably pointless concept of offering a 'clear line of sight from boot space to dashboard'. Not many cars have a floating centre console. Not many cars have a strange tent setup instead of a rear parcel shelf. I also noted that a lot of C30s have heated seats, which seeing as I was on the lookout for a winter car was a very appealing optional extra. After all, who does winter better than the Swedes?

So the decision was made. My next car would be a Volvo C30, and I duly hit the usual outlets to find suitable candidates. In doing so, I uncovered the next rather odd thing about these cars: they all seem to be in Nottingham! I've no idea why this is. Perhaps they had a very proactive dealer network around there when the C30 was current.

Inevitably then, I found myself driving to Nottingham to view a shortlist of cars, and ended up settling on a rather smart-looking 2008 1.6 petrol. I'd initially wanted to avoid the entry-level petrol engine and find a more powerful 2.0 or 2.4 5-cylinder, but the former doesn't seem to exist and the latter was only available as an auto. The 1.6 unit is a tried and trusted Ford unit, and the condition of the car I found was good enough to convince me it was worth putting fuel economy above performance for a change.

So a deal was done and I set off back to Leeds on a sunny Saturday morning in my shiny new car. And it was ... terrible. With obvious noise from the front end and the steering wheel vibrating and pitching, it was clear something wasn't right. Part of the deal I'd agreed was the changing of the front-lower suspension arm bushes (a common MOT fail point on the S40/V50/C30). The dealer had carried this out, but clearly hadn't reset the tracking after doing so.

Things continued to go downhill the following day when the car wouldn't start. Oh dear ... had I managed to buy a lemon? A failure to crank pointed to the battery being at fault, and a quick look revealed it still had the original Volvo-branded battery in place! Fast forward a week, with tracking sorted, a new battery fitted, a replacement cambelt and four new quality tyres in place and it was a car transformed.

So far so good then. That 1.6 unit is actually a lively, characterful engine, 40+ mpg is a bonus and the interior quality makes it a very nice place to sit. Especially with those heated seats on, which are a big hit with my wife.

All set for winter then. I'll report back on how it gets on.



The very limited rear view.



What is UTC?

The earliest traffic signals date back to 1868, originally with gas-powered traffic lights and were based on railway designs with only two colours, red and green. The signals were manually operated by police officers, and their purpose was to improve visibility of the traffic controller so the mast was 24 feet high and could be seen on all arms of the junction. However, the problem with this system was that it was severely limited by the technology as police officers were still required at the junction because there was no automatic control. Unfortunately, the first UK traffic signals did not last long in operation, as they exploded less than a month after installation.

The subsequent electric-powered traffic light was first introduced in the UK during the 1920s after observing its success in America and Germany. There were a number of policy objectives behind the introduction of traffic signals; primarily they were developed to relieve police officers of traffic management duties as traffic growth was rapidly increasing and many more police officers were required to direct traffic flow. This is the first example of policy driving the development of traffic signals; firstly, the members of parliament reasoned that there would be some improvement to public safety. And secondly, there was a substantial financial benefit as the installation costs were approximately £100 whereas a week's wages for a police officer was £6 to £7 and, therefore, the local authorities would see a rapid return on their investment.

The traffic light phases were on a fixed-time plan. During the late 1950s, proposals were being made to improve the original isolated fixed-time plans by co-ordinating traffic signals. This involved determining offset times between neighbouring junctions so that a 'green wave' could be created and, therefore, reduce delay and congestion along arterial routes. To enable this local co-ordination, junctions are typically defined into small regions where the signals can be optimised in terms of split, cycle and offset times. However, for fixed-time plans to synchronise correctly, the cycle times must be the same length or a direct multiple, and the regional cycle time is, therefore, typically defined by the busiest junction in the region.



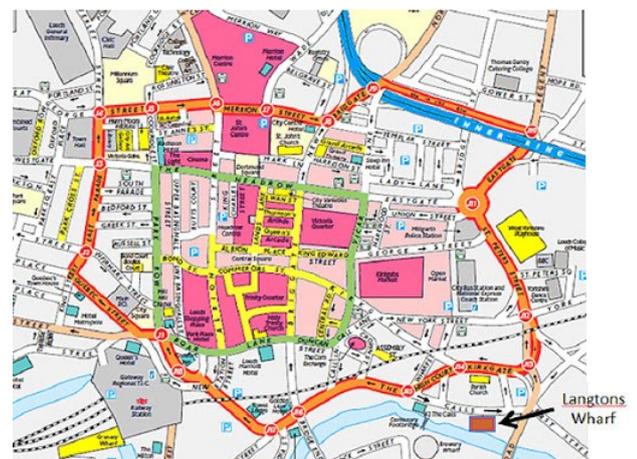
It is very noticeable that a lot of drivers will shy away from city and town centres in the belief they are likely to become stuck in standing traffic. However, this is usually unfounded as our cities have urban traffic control (UTC) systems. These are a specialist form of traffic management which integrate and co-ordinate traffic signal control over a wide area in order to control traffic flows on the road network. Integration and co-ordination between adjacent traffic signals involves designing a plan based on the occurrence and duration of individual red, amber and green signals and the time offsets between them, and introducing a system to link the signals together electronically.

A traffic-responsive signal control system is a means of adjusting the traffic signal settings (cycles, green splits and offsets) which optimises a given objective function, such as minimising travel time or stops, in real time based upon estimates of traffic conditions. There are many different UTC systems in operation around the world, but they can provide the basis for an extended control system, generally termed Urban Traffic Management and Control (UTMC).

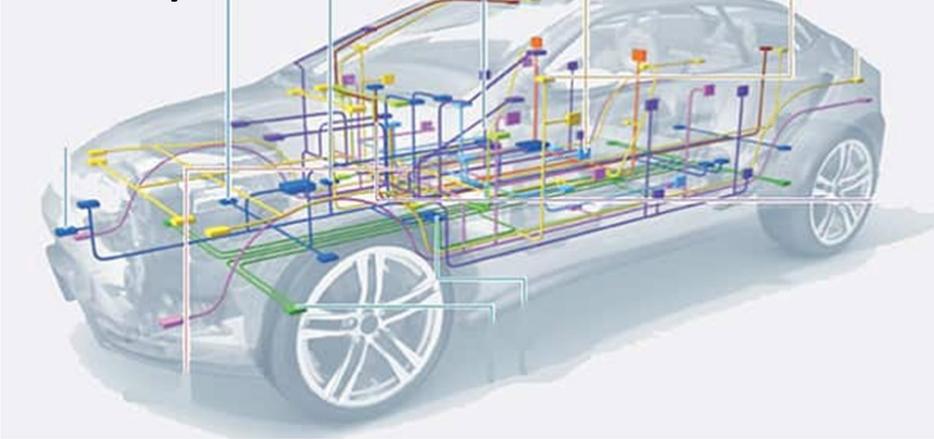
UTC systems can be used to obtain better traffic performance from a road network by reducing delays to vehicles and the number of times they have to stop. UTC systems can also be used to balance capacity in a network, to attract or deter traffic from particular routes or areas, to give priority to specific categories of vehicles such as public transport or to arrange for queuing to take place in suitable parts of the network.

There are currently four separate UTC systems for traffic signals in West Yorkshire. Bradford, Kirklees and Wakefield working from their own UTMC centres, while Calderdale procures and shares its UTMC centre with Leeds. The West Yorkshire UTMC project aims to combine these with the control room based at Merrion House in Leeds. No mean feat with 1600 sets of traffic lights, information displays and CCTV cameras to control.

Here's a challenge. The next time you go to Leeds, drive onto the City Centre Loop Road and as per your training, plan to stop at every set of traffic lights but prepare to go. See how well the pedestrian crossings integrate with the traffic lights. It is a minimum of two lanes all the way round, with excellent direction signs and road markings. There is no need to rush to beat the lights because you can guarantee the next one will get you. Drive a couple of circuits of the Loop Road and you will see just how well the system works.



Vehicle Systems Forensics



A deployment event is where the threshold has been passed for the pre-determined parameters set by the manufacturer for the deployment of the safety restraint systems to be deployed. This is when the airbags and seat belt pre-tensioners are deployed. Again, the data being monitored in typically the five seconds prior to the deployment will have been recorded on the ECU. The difference between non-deployment events and deployment events with regards to data storage is that a deployment event will be permanently stored whereas a non-deployment event can be overwritten by future non-deployment events. An example of the data recoverable from a deployment event can be seen in the below illustration:

Vehicle systems forensics is a relatively new area of digital forensics. The activity involves the recovery of data from a modern motor vehicle that can assist serious crime or serious collision investigations. A modern motor vehicle can have in excess of 100 electronic control units (ECUs) all communicating with one another across a number of different networks. It is likely to be the most complex piece of equipment a person owns.

As a result of the communication of data that takes place across a vehicle's networks and the processing of data by individual ECUs, some data can be stored on those ECUs and be of real value to serious crime and collision investigation.

Perhaps one of the most common ECUs for data retrieval is the airbag ECU. This is sometimes referred to as the black box or event data recorder. This control unit is constantly monitoring the status of certain sensors across the vehicle, and when certain parameters are reached the storage of data occurs. The module is monitoring a number of key pieces of data that are broadcast on the vehicle network such as vehicle speed, engine speed, steering angle, seat belt status, accelerator position and brake pedal status to name but a few.

On a modern motor vehicle, an airbag ECU can record two types of events, a non-deployment event and a deployment event. A non-deployment event is where the vehicle has reached a critical point where the airbag ECU is considering the deployment of the safety restraint systems, such as the seat belt pre-tensioners or the airbags, but before the threshold for deployment is reached the threat disappears and the vehicle makes the decision they are not required. The airbag ECU will typically store the five seconds worth of data being monitored prior to the non-deployment event being detected. What this means is that airbags do not need to have gone off for data to be stored and in a near-miss scenario data may be present.

Pre-Crash Data -5 to 0 sec (Record 3)

Time (sec)	Engine RPM (Combustion Engine) (RPM)	ABS Activity	Stability Control	Steering Input (deg)	Speed, Vehicle Indicated (MPH [km/h])	Accelerator Pedal (%)
-5.0	3328	No ABS Activity	No ESC Activity	14	58 [93]	100
-4.5	3392	No ABS Activity	No ESC Activity	24	60 [96]	100
-4.0	3520	No ABS Activity	No ESC Activity	24	61 [98]	100
-3.5	3520	No ABS Activity	No ESC Activity	26	63 [101]	34
-3.0	3456	No ABS Activity	No ESC Activity	34	60 [97]	0
-2.5	2944	ABS Activity	No ESC Activity	34	56 [90]	0
-2.0	2560	ABS Activity	ESC Activity	16	50 [80]	0
-1.5	2752	No ABS Activity	No ESC Activity	2	48 [78]	0
-1.0	2112	No ABS Activity	No ESC Activity	6	46 [74]	0
-0.5	1472	ABS Activity	No ESC Activity	0	37 [59]	0
0.0	960	ABS Activity	No ESC Activity	0	27 [43]	0

This is data from a vehicle that has collided with the rear of another vehicle. The airbag ECU has recorded data that is useful for a collision investigation as we can see the vehicle's movements in the lead-up to the collision. In this instance, the vehicle has been travelling at around 60mph with the accelerator being pressed up and until between 3.5 and 3 seconds before the collision, followed by the deployment of the safety restraint systems and the vehicle has started to slow down but has likely collided with the other vehicle at around 27mph.

Pre-Crash Data -1 Sec (Record 3)

Safety Belt Status, Driver	Belted
Safety Belt Status, Front Passenger	Not Belted
Frontal Airbag Disable Indicator Status, Passenger	Off
Safety Belt Status, 2nd Row, Driver Side	Not Belted
Safety Belt Status, 2nd Row, Center	Not Belted
Safety Belt Status, 2nd Row, Passenger Side	Not Belted
Airbag Warning Lamp, Status	Off
Airbag Warning Lamp, On Time (Before Event) (min)	Airbag Warning Lamp Off
Frontal Airbag Suppression Switch Status, Front Passenger	Not Suppressed

We also see the status of the seat belts at the time of the record, which is useful for understanding occupant injuries and validating accounts given by vehicle occupants over the use of seat belts at the time of an incident. Accessing this data requires specialist hardware and software that is plugged into the diagnostic port on the vehicle, or if the vehicle is badly damaged and the networks have become damaged then it can be read directly by removing the ECU from the vehicle and plugging into it with the specialist hardware and software.

Whilst most modern vehicles do record this data on the airbag ECU, there is no legislation in place in the UK for the manufacturers of the vehicle to make this data available to crash investigators so in some cases it is known the data is likely there but accessing it can be a real problem for police investigators and insurance investigators alike. It has been mandatory in the USA for this data to be available to crash investigators for many years but despite efforts to make this mandatory in Europe it is still awaiting formal approval.

It is well documented that serious crash investigation has a huge impact on many agencies and the cost of a fatal collision investigation could easily top a million pounds. It is considered that having access to this data would improve investigations and in turn reduce the number of serious collisions.

Continued on page 9

There is no doubt it will be available in the future and some manufacturers are already making it available, such as Audi who recently announced that all their future releases will have the facility to access this type of data if required. Data ownership is a conversation for another day, but if you are unsure about your own personal data then refer to your vehicle handbook or dealership for advice.

One of the other ECUs that can contain a gold mine of information for investigators is the infotainment ECU. More commonly known to some as the car stereo, a modern car stereo is referred to as an infotainment system. A combination of the words 'information' and 'entertainment', it provides both to the driver and occupants of a vehicle. These systems can contain built-in satnavs and connectivity to mobile telephones and other media devices. They are also responsible for giving the driver various pieces of information about the vehicle, for example if a door is not closed properly or seat belt warnings. As a consequence of the ECU dealing with all this data, it can also store it. In some cases, infotainment systems can store details of where a vehicle has been, when and where doors were opened, when seat belt reminders were made to the driver and which Wi-Fi routers the infotainment system has seen in its vicinity in its quest to make connection to one a convenience feature for the driver or occupants.

However, this digital skid mark means that there are data types that can then provide huge investigative opportunities for serious crime and collision investigations. Let us consider a vehicle attending an address and the occupants get out and murder the occupants of the house before making off in the vehicle. The vehicle is recovered by the police and examined for data it may store. If the infotainment ECU has recorded the GPS fixes of its history and puts it outside the house at the time of the murder, then it is vital evidence for the investigation team. If it has recorded how many doors have opened, then it also is useful in determining how many occupants of the vehicle may have been present.

In the event of a serious collision when the driver of a vehicle knocks somebody down and kills them but fails to stop, and when questioned by police at a later time says they thought they had hit a bin and so didn't stop, the vehicle may tell another story if it shows the vehicle stopped and the driver's door was opened and then closed 30 seconds later before driving off. The infotainment system may have recorded these events.

Accessing this type of data on an infotainment system is complex and, in most cases, involves the recovery of the ECU and for the data to be taken directly from the chips or hard drives it contains using a variety of techniques. It is a challenge and not something advocated by the manufacturers who wish to protect user data and propriety information about their products. The amount of personal data on an infotainment system is much more than that of an airbag ECU, and the handling of this data requires authorities in place in police investigations or an owner's permission in civil cases. You may recall a time when you did not have a passcode on your mobile phone. Do you have a passcode on your infotainment system? I think most will say no, but in a few years' time that answer will be markedly different.

The amount of data on any given car will depend on the age, make, model and trim level of the vehicle. However, these features that are touched upon in this article are standard on most of the new cars that are registered. At an average of 350 new cars being registered every hour in the UK, the vehicle population will be full of them for years to come with older models disappearing from the population. Now and in the forthcoming years, a vehicle investigation will involve a digital element to it.

Noel Lowdon is a Vehicle Systems Forensics Specialist and a former UK Detective. His company Harper Shaw Investigation Consultants Ltd support vehicle related investigations across the world with techniques to acquire data from vehicle systems.



There is no doubt the last year has caused problems for many of us, suffering from anxiety, social isolation and perhaps even fear, and mental health has been in the news more because of the pandemic. Mental Health Motorbike was only launched in

March 2020 and exists to create meaningful opportunities to grow the greater well-being of the motorbike community with the ultimate aim to reduce suicide amongst bikers in the UK. It was set up by Paul Oxborough and Jay Lucas following the death by suicide of their friend Dale Caffrey.

What does the Mental Health Motorbike aim to do?

- Promote a greater awareness of mental health.
- Create the UK's first dedicated, free biker support network by having a trained Mental Health First Aider in every town and city.
- Break down social isolation for those experiencing mental health issues by creating a strong support network.
- Help people identify future purpose and equip them with a tool kit to develop a greater long-term wellbeing.
- Create a vibrant network of volunteers running events and online activities throughout the year through an ambassador scheme.

Support people in crisis and signpost them into appropriate support through one-to-one, group and peer support.

This year they will start the process to become a registered charity. At the moment they are running as a not-for-profit organisation and they are all volunteers. The main priority is to find funding for a business manager, an outreach worker and some admin support. They are currently supported by businesses and have a crowdfund page so you can make a donation.

They have a growing number of Mental Health First Aiders within the group who can offer support via their website or by telephone for anything from abuse to suicide prevention.

Mental Health Motorbike aims to attend a minimum of 25 events per year, including the British Superbikes, reaching out to the biker community directly. Their branded motorbike, pop-up tent and ambassadors will attend these events and be very visible to encourage people to come and talk to them and join the network. Many of their volunteers are people recovering from mental health issues and they will represent the Mental Health Motorbike brand at events. Events are on the website.

You don't have to be a motorcyclist to take a look.

***A free mental health support service
for the biker community***

Follow us online:

www.twitter.com/mhmotorbike

www.facebook.com/mhmotorbike

www.instagram.com/mhmotorbike

[email:info@mhmotorbike.com](mailto:info@mhmotorbike.com)

tel:07990 578684





Meet the tutor - Andy Twaites

I passed my driving test in 1969 in a Bedford Dormobile, which my father had recently bought to solve

the problem of ferrying around an increasingly growing family. That summer, I drove us all to Glenuig in Scotland; a drive of well over 350 miles and it did feel like quite a responsibility at the time.



Quite coincidentally, my Saturday job entailed delivering confectionery round various shops in Leeds. This was also in a Bedford, but to make life interesting this vehicle had a three-speed column-change gearbox whereas my father's was a four-speed. There were interesting moments when I found myself occasionally moving backwards from traffic lights, much to the consternation of the drivers behind.

A year or so later, father changed the family transport from a vehicle with virtually no bonnet to a Ford Zephyr. It was a very different experience getting the Ford into the garage the first few times.



Whilst at college, I continued working my Saturday job, which had moved on to driving a large Commer mobile shop around the outlying estates of Leeds. I had to become very adept at reversing a long way between tight rows of parked vehicles using just my door mirrors, with many of the recent customers watching with great interest, particularly as I moved slowly past their vehicles with only inches to spare.



As soon as I was working and earning, I bought myself a Ford Escort Mk II and loved it. Over the next few years, I owned a variety of cars. There was a Cortina, Magnum, Fiat 124 Special T and an automatic Cavalier for which, once I had bartered the price down to fit my pocket, I had to ask the owner for a quick lesson in driving automatics.

My most memorable car was my Scimitar GTE. This was the family car for over twelve years and a constant joy to drive, though it needed careful looking after and plenty of petrol. It was a very practical vehicle in reality. It could get us around in great comfort, often to France in summer. It could easily get all my band gear in the back if I was playing any Saturday night around the country. It could also give me a lot of fun if I was on my own and just out for a nice drive as it had very nice acceleration if you wanted it. Having said that, my present car, an Audi S3, accelerates 0-60 in almost exactly half the time and with no fuss whatsoever. The Audi also needs a lot less attention.



It was shortly after buying the Scimitar that I joined the IAM to complete my first Advanced Drivers' Test, and not long afterwards, I became a tutor or as they prefer to call them, an observer. I switched to RoSPA not too many years back because I liked the idea that you were retested regularly. I also became a tutor again which I still really enjoy. It has the added bonus of keeping your own skills to a good standard, which you are constantly reminded about, especially when you find yourself 'admonishing' one of your associates for doing something similar to one of your own recent drives!

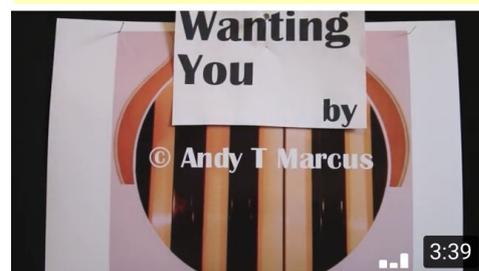
My most recent driving challenges have occurred since I bought my retirement present of a Land Rover Defender and a small sailing boat. Learning to negotiate this duo, when trailing it to launch sites, makes life quite interesting at times, especially on the long reverses. My Commer mobile shop experiences from years back as an eighteen-year-old were clearly useful.



Will We Appreciate?

Andy T Marcus · 113 views · 1

We had a brief musical interlude at our Zoom Car Tutors meeting in February, after discovering Andy uses the pseudonym Andy T Marcus on YouTube. Having spent the last ten months like the rest of us in some isolation, and now with time on his hands, he has put his musical talents to use. Before retirement he was a school musical director and plays several instruments. So if you want to listen to Bach or a song he wrote about the Lockdown, take a peek. You will not be disappointed. *Editor*



WantingYou ATM

Andy T Marcus ·

Do You have a hidden talent you can tell us about which other members may be interested in?



accidents don't have to happen

Advanced Drivers and Riders

RoSPA Advanced Driving Test

NONE HELD

RoSPA Advanced Motorcycle Test

NONE HELD

Riders