



GO BETWEEN

Oxford IAM Group Newsletter

December 2009



GROUP NEWS

November's meeting kicked off with the AGM. We said a sad goodbye to Janet van den Berge & Mike Roberts who have both stood down from the committee- thank you both for all your hard work & efforts. We are pleased to welcome Mark Reddin on board. Mark has some exciting ideas & is keen to get some different driving events set up. The committee, in particular Ian Jeffs, work hard to try & make the Group exciting & promote driving- please, please support us by attending events. If you have any suggestions for things you might like to do, or want to be more involved, please let one of us know.

Recent Passes

Congratulations to Alexander Lewis, Kirk Rockett, Amal El Megreisi, Giles Payne, Elizabeth Howe, Kim Nelson & Suzie Naylor on their success in the IAM Car test, and to Hugh Beamish, Roland Rawicz-Szczerbo, Martin Chick, Tim Siddal & Don Farmer who have all passed their motorcycle tests recently.

IRON BUTT ASSOCIATION

We continued the November meeting with a great presentation by Roger Allen, of the Iron Butt Association in the UK. These are 'the Worlds Toughest Motorcycle Riders' & our own Pete West is heavily involved in this group. It's a pretty exclusive club, dedicated to safe, long distance endurance riding. Membership cannot be bought; to gain entry, you need to complete a rally, or a recognised Iron Butt ride. Safety is paramount- Roger emphasised the importance of proper planning of the rides, and ensuring that participants stay safe at all times. The minimum distance is 1000 miles in less than 24 hours. This sounds crazy, but is achievable at an average speed of 42mph. The rides need to be backed up with witnesses & proper documentation, i.e. fuel receipts. UK rides include Lands End to John O'Groats- 874 miles in under 24 hours, and the Four Corners Run- Lowestoft, Lands End, John O'Groats & St Davids in under 36 hours. The Association is also involved in charity work- in June 2009 173 riders were verified as completing an Iron Butt ride of a minimum of 1000miles in under 24 hours, raising an incredible £31000 for the Royal British Legion. Some riders completed the runs with pillions, and the youngest participant was 18. For more information, see their website at <http://www.ironbuttuk.org/index.html>. It was a very entertaining & enlightening talk!



Appearances Can Be Deceptive



I think this is used for advertising a type of suspension in Canada, but it also works as a speed control device! People slow down and try to "straddle" the hole, then breathe a sigh of relief that they completely cleared it! Thank you to Trevor Hipkin who sent it on to me.



Steering is one of the first things we learn as a novice driver and in the main for a lot of people that's as far as it goes. But steering is in my view one of the most important aspects in performance driving, and it can be the difference between a good driver and a great driver. Higher speed needs extended vision to create more time to plan our approach to hazards and junctions & linking this with smooth, accurate steering action is vital for overall safety.

Holding the Steering Wheel.

When I first learned to drive, my Dad taught me to hold the steering wheel at the 10to2 position. This approach was developed long before the introduction of power steering, and when most steering wheels were large, thin, and made of metal and wood. The effort and leverage needed to steer the car without power steering and the general weight of the car meant a large steering wheel was needed, and required the driver to pull down on it in order to achieve the required steering input. But nowadays with modern cars and the technology of power steering, the net result is that the extra leverage is no longer required, and so the hand positions can be revised to suit other requirements. I now encourage drivers to hold the steering wheel at the quarter to three position. At a quarter to three the grip on the wheel is typically more of a pistol grip, with the thumbs over the cross spokes of the wheel and the fingers around the back of the spokes - and indeed some under the cross spokes. This will normally give most drivers a five-point grip per hand rather than the two-point grip of the 10to2 position. Other advantages include the ability to flex the fingers and reach the ancillary controls, such as indicator stalk or windscreen wipers, without needing to release the steering wheel, and allowing the thumb to reach the centre of the steering wheel where in general the horn button is located. The lower point of grip means that for most drivers, there is often less tension in the upper arms and shoulders, so driver fatigue can be reduced. Again for most drivers, the quarter to three position also allows fixed input steering – we'll get that bit later!

A final point to consider regarding which grip to use on the steering wheel is airbags. The quarter to three position is more airbag friendly as the arms are already at the widest point and typically, they are pushed aside by the airbag inflation. Some people express concern about the possibility of thumbs being injured in an impact when wrapped around the steering wheel. Of course this is a possibility, and I recommend rolling the thumbs outside the rim of the wheel if the impact is unavoidable.

Steering Techniques.

The Pull – Push Method

During our Learner driving lessons and our IAM observer sessions we are taught ONLY to use the Pull - Push method of steering. Unfortunately some people still considered it to be the only professional way. I see many of my customers shuffling the wheel (or Milking da Cow as a good friend once called it, thanks Pentti) in a vain attempt to replicate the pull push method. When I ask them why, the usual reply is that they thought that they should, and that I would be disappointed by seeing them crossing their hands. This isn't true, but the one thing I do stress is that we make full and efficient use of all steering techniques. So while the 'pull push' technique is very useful especially for low speed manoeuvring and for delicate feedback for development engineers for example, the biggest issue with it for most drivers is that they don't use the whole steering wheel.

As the steering wheel moves to the right for example, the right hand should begin to pull the wheel down, the left hand should slide down the steering wheel at the same rate, and as the hands are about to meet at the 6 o'clock position, the grip should be exchanged and the left hand should take over and start to push. At this point the right hand slides back up the steering wheel opposite the left hand until they are about to meet at the 12 o'clock position, when the whole process starts again. So the hands should not cross and they should meet at 6 and 12 o'clock positions only.

Pull push is unquestionably a very efficient and accurate method of steering and I often still teach it to chauffeurs and professional drivers of all sorts, because I believe it to hold an important place in the Tool Box of a serious driver, and therefore, one which needs to be honed and perfected.

Rotational Steering

Rotational, or crossed hand, steering is still a taboo in the UK according to the professional bodies but in the rest of the world this isn't the case. I have had the great opportunity to coach drivers in places like Sweden and Norway on their Frozen lakes, talking to some of their own instructors, they have never used any other technique. So, okay, what's the problem with rotational steering I asked a Learner Driving Instructor a while ago at a local instructor association meeting, because the majority of drivers use it once they have passed the driving test anyway? I was told in response that my arms would become tangled and that I would have to release the steering wheel to uncross them.

I am a fanatical Rally fan and occasional amateur rally driver, and I love to watch the in-car footage of the top rally drivers such as the late great Colin McRae, and they cross their hands all the time and don't seem to get tangled up! So who is right? The fact is that the Swedish Police conducted a 15 year study and proved that rotational steering is the best and safest method of steering - particularly during emergency manoeuvres. This is because the steering wheel can be moved very quickly and efficiently to the point required and then the steering can be taken off again just as quickly. In an emergency or skid control situation, it can provide the response time needed and prevent a secondary skid developing. So, another technique that needs to be developed, and slotted into the Tool Box of a thinking driver.

Fixed Input Steering.

This is The Racing Driver's way! I have listened to many a so called Advanced driver criticize racing drivers for using fixed input almost as much as the race drivers criticize the Advanced road driver for their pull push. The real truth of the matter is that there is a time and place for each of these techniques. That doesn't mean that fixed input steering should only be used on a track, and to prove my point, I would say that I use fixed input a lot of the time, on road, track and on proving grounds. The advantages to fixed input steering are, steering references and steering response times. For smooth, accurate and repeatable steering, the driver needs steering references, or in other words, a known place or datum to start from. Without this reference point, steering becomes a lottery of pure guesswork. With your hands at a Quarter to Three position, a fixed reference point, with the steering wheel in the straight-ahead position allows any steering input to be measured from that point and then returned to that same fixed point. However, if the hands are just placed loosely around the 10 to 2 position - or anywhere else on the outer rim of the steering wheel, it is very difficult to accurately return to that exact spot later. When the car slides or needs a corrective input, steering response times must be smooth and accurate, but also proportional to the speed and grip levels available. The tactility of fixed input steering does allow the driver to feel the feedback through the steering and so correct problems at an early stage. However, fixed input steering does have its downsides as well. For example, if the car slides and the amount of steering required to correct the slide means that by using fixed input the arms would touch, then the technique becomes of limited use. At the point the arms are about to touch, a decision has to be made - with the potential for transferring to rotational steering, pull push or another technique, all coming into question. This is a difficult area, but I meet some drivers who pigeon hole themselves by using only one steering technique - whether that's the Advanced driver who will not cross his hands under any circumstances and crashes the car, or the race driver who believes that if a situation cannot be corrected with fixed input, it is not possible to catch it at all. But this particular type of slide may well be no problem whatsoever to a rally driver or auto-test driver using the palming technique.



Palming (The window cleaners school of Motoring!)



In essence, this is placing the palm of the hand flat on the rim of the steering wheel and using only the friction between palm and wheel, turning the steering wheel quickly using only one hand. Admittedly, this is not a technique I teach too often to road drivers, but to VIP Protection / Close Protection officer performing anti-hijack / Tactical and Evasive driving manoeuvres, can benefit from this method of steering.

Steering / Throttle

The relationship between the steering and the throttle is very rarely discussed during learner driver lessons and yet it plays a vital part in most drivers everyday driving.

We need to look at what we would call the cars Slip Angle. If a car is steered onto maximum lock in either direction, and held at that point in say, second gear at a steady pace, it will follow a continuous circle. If the throttle is then progressively increased, the size of the circle made by the car will increase in direct proportion to the amount of throttle applied. This is known as understeer, as the car is not steering at the level requested. So in a bend, too much power too soon results in the car running wide.

If we then come off the throttle, the car will tuck in and turn back towards the centre of the circle it was following. It is important to note that the tuck in or oversteer is non-linear. In other words, a small lift of the throttle can result in a dramatic reaction from the car.

This phenomenon is known to rally drivers as lift-off oversteer. It typically occurs when a driver has misjudged a bend, and realizing the mistake, snaps off the throttle, transferring the weight of the vehicle forward and making one of the front wheels very heavy. The rest of the car then revolves around that wheel and the car spins.



A good way to prevent all of these problems is to imagine one end of a piece of string tied to the right hand cross spoke of the steering wheel, while the other end is tied to the big toe of the right foot. If the steering wheel is pointed straight ahead, the string is slack and the throttle can be pressed firmly. If however, the steering has a big input, then the string becomes tight and a big throttle input would snap the string. As the steering is returned to the straight-ahead position, the string becomes proportionately slacker and so the throttle can be increased.

Steering / Brakes.

Just as the throttle plays an important role with the steering, so does the use of the brakes. Braking and steering both rely on the grip of the tyre on the road surface. That grip is maintained by 'static contact'.

Imagine a particular block on a tank track. At some point that block will be placed down, stationary on the ground, and all the wheels of the tank will roll over it before it is picked up and taken round the top and the whole process starts again. A normal car tyre works in the same way. A section is placed down stationary, and the wheel revolves over it. That is why when you drive into a muddy field and apply no acceleration or deceleration, the car will leave a perfect imprint of the tyre tread. If braking or throttle are introduced however, a sludgy smear appears instead, as 'static contact' has been lost.

Therefore, if a driver is braking and steering into a bend, it is likely that the speed of wheel rotation will not match the forward momentum of the car. As a result, 'static contact' is lost and the car will understeer. At this point the driver has two options: release the brakes and increase the steering grip, or straighten the steering and increase the braking grip, this is known as the "Tyre Grip Trade Off".

The driver has to choose as the decision always depends on the prevailing circumstances.

If the car has one of the modern electronic aids, for example ABS (Anti Lock Braking System) or ESP (Electronic Stability Control), the effect is reduced but still applies, so the driver can influence the stopping distance by the amount of steering applied. And if the steering is the vital element, it may be worth considering reducing the amount of pressure on the brakes if possible. None of these decisions are easy and so some training may be required to make the best use of the systems applicable to the car in question.

During Roadcraft's skidcar training, drivers are taught Cadence braking and Evasive braking (the lock and release technique). The brakes of a non-ABS vehicle are applied firmly to lock the wheels, then whilst sliding in a straight line (no steering with wheels locked), steering is applied. At an appropriate moment the brakes are released, 'static contact' returns to the wheels and the steering responds. This is all very well at lower speeds but be cautious if the speeds are higher. The instantaneous transition from no steering to a large amount of steering can have some very dramatic effects on a car. It may result for example, in a sideways collision with the object you were trying to avoid.

Braking and steering at the same time isn't always a bad thing though, and I often use the brakes in combination with the steering to assist with a dynamic weight transfer often called trail braking - placing more weight on one particular wheel to allow it to grip on an adverse camber for example. The downside to this is that the braking must be accurate and the transfer to the throttle smooth and accurate or the car will be destabilized. This technique can also be called 'trail braking'.

Other areas for consideration are the way steering accuracy and smoothness is affected at high speed. A tiny yet badly timed movement at high speed can result in catastrophic consequences. Steering on low friction surfaces again requires accurate and delicate inputs which are responsive to feedback through the steering wheel and through experience gained.

Steering is a massive subject, and this overview has only scratched the surface, but if you have specific questions about this subject or want to learn more about any aspect of driving, please don't hesitate in giving me a shout.

Ian Jeffs - Events Manager
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A Senior Driver Story by GRANDMA

The other day I went up to a local Christian bookstore and saw a "Honk if you love Jesus" bumper sticker. I was feeling particularly sassy that day, because I had just come from a thrilling choir practice followed by a powerful prayer meeting, so I bought the sticker and put it on my bumper.

I was stopped at a red light at a busy intersection just lost in thought about the Lord and how good He is, and I didn't notice that the light had changed.

It is a good thing someone else loves Jesus; because if he hadn't honked, I'd never have noticed.

I found that LOTS of people love Jesus. Why, while I was sitting there, the nice man behind started honking like crazy, and he leaned out of his window and screamed, "for the love of God, GO! GO!" What an exuberant cheerleader he was for the Lord. Everyone started honking! I just leaned out of my window and started waving and smiling at all these loving people. I even honked my horn a few times to share in the love. There must have been a man from Florida back there, because I heard him yelling something about a sunny beach. I saw another man waving in a funny way with only his middle finger stuck up in the air. When I asked my teenage grandson in the back seat what that meant, he said that it was a Hawaiian good luck sign or something. Well, I've never met anyone from Hawaii, so I leaned out the window and gave him the good luck sign back. My grandson burst out laughing; why even he was enjoying this religious experience.

A couple of the people were so caught up in the joy of the moment that they got out of their cars and started walking towards me. I bet they wanted to pray or ask what church I attended, but this is when I noticed the light had changed. So I waved to all my sisters and brothers, smiled at them all, and drove on through the intersection. I noticed I was the only car that got through the intersection before the light changed again, and I felt kind of sad that I had to leave them after all the love we had shared, so I slowed the car down, leaned out of the window, and gave them all the Hawaiian good luck sign one last time as I drove away. Praise the Lord for such wonderful folks!



POST XMAS KARTING

We are looking at setting up a karting event sometime after Christmas. If you would be interested in coming along, please email your details to iamoxfordevents@hotmail.co.uk Venue, date & prices will depend on numbers, obviously the more interest we get the better deal we can do. You don't have to be a member, so if you want to bring a mate along just let us know!

2010 DIARY

January	No Meeting
February 3	First Speaker of the Year- Watch this Space!
March 3	Jon Taylor- Motorcycling
April 7	Ian Hudspeth- Oxford Strategy
May 5	Professor John Stradling- Sleep Apnoea & Driving
June 2	Demonstration Drive & Motorcycle Ride-out
July 7	Demonstration Drive & Motorcycle Ride-out
August 4	Demonstration Drive & Motorcycle Ride-out
September 1	Ian Lewis- Thatcham Laboratory
October 6	Motorcycling Talk- TBC
November 3	AGM
December 1	Christmas Quiz

Committee Members

Mark McArthur-Christie - Chair	Ian Jeffs - Events Manager
Clive Stayt -Vice Chair & Chief Car Observer	Mark Reddin
Tony Chalkly -Vice Chair & Secretary	John Lang - Chief Motorcycle Observer & Co-ordinator
Duncan Jones - Membership Secretary	Peter Ingram
Nick Morse - Treasurer	Helen Deeley - Newsletter Editor
Chris Caspell - Car Associate Co-ordinator	

All Contributions will be gratefully received, however Editors' decisions on content are final, & I reserve the right to edit articles. Any opinions stated are personal unless otherwise noted.

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