DOSSIER : DAY TIME RUNNING LIGHTS. (DRL)

Motorcycle riders' position

MAG Belgium vzw
Hoek 13
2850 Boom
Tel : +32 3 888 41 63
e-mail : pac@mag.be

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1. Foreword.

Daytime running lights or DRL is a subject that has been dealt with on several occasions in Europe and in Belgium. The arguments of motorcycle riders are collated in this document. Some text and quotes have been shortened and where relevant, the source of the original text is identified.

2. Historical overview of studies and decisions

1967	Sweden begins with DRL in order to facilitate the change of lane traffic (previously they drove on the left hand side of the road). The first use of DRL was driving with parking lights on. In 1977 this changed to headlights because there were still accidents by inattentive drivers.
1976	Nordic Road Safety Council NTR recommends DRL in Denmark, Norway and Sweden.
1977	Adoption of the DRL law in Sweden. Beginning of DRL for motorcycles in Denmark as a pilot project
1979	LUND investigates the effect of these measures in Denmark. Lund comes to the 'devastating' conclusion of a small ***increase*** of motorcycle accidents. This is in conflict with the desired decrease. **Since then no academic study has mentioned the LUND study or made any references to it.**[1]
1981	Andersson & Nilssons study on DRL in favour of DRL in Sweden.
1983	DRL for motorcycles in **Belgium**
1990	Despite the findings of Lund, DRL becomes mandatory in Denmark.
1995	Theeuwes & Riemersma[2] (The Netherlands) recommend DRL in a study. This study is based on the Andersson & Nilsson study of 1981
1997	Investigation by the USA Highway Loss Data Institute to the impact of DRL on accident figures before and after DRL. **This research concludes that there was an increase in accidents by 3.7 %! This confidential report was withdrawn.**
2000	State of Victoria (Australia) publishes their conclusions on DRL. DRL is **dangerous**.
2004	Based on the research of Koornstra, Elvik, Brouwer, Commandeur[3] the EU advises in favour of DRL. The final decision is yet to be made. Inside the USA, based on the findings of Tessmer[4], the idea of launching DRL is put forward.
2004	Japan rejects the proposals and **distances itself publicly from all other countries in favour of DRL and from the publicised academic texts on DRL.**

[1] Rapport: http://www.safespeed.org.uk/~dadrl/docs/Lund1979motorcycleDRL.pdf.
[2] Rapport: http://www.cs.vu.nl/~cogsci/cogpsy/theeuwes/AAP_1996.pdf
[3] Rapport: http://www.swov.nl/rapport/R-97-36.PDF
[4] Rapport: http://www.lightsout.org/docs/DRL7_RPT.pdf

3. Today in Belgium

In **March 1983**[5] DRL became mandatory for motorcycles in Belgium. Through this regulation, the government hoped that the rider would be more visible in traffic. So far, most remarks by car drivers involved in an accident with a motorcycle are that they didn't see the motorcycle.

In **October 2001**, the acting Minister of Transport Isabelle Durant (BE) was questioned in parliament following the proposals from the EU commission[6]. From her answer we note the following statement:

Commence quote:
Concerning the second question, I won't get involved in the debate on the reliability or the degree of optimism of the scientific reports about DRL. As chairman of the European Union, I simply note that the available research figures are not good enough to persuade the different member states to enter this measure. Personally I can find myself in agreement with the remarks of Mr Malcorps. Therefore it is possible that in the advice to the EU commission the proposal will enter to ***exclude*** *the proposition for DRL in the whole packet of measurements.*
End quote.

Commence quote :
I share the concern of pedestrians, cyclists and motorcycle riders and have the opinion that first it must be certain without any doubt that the entering of the DRL measure has no negative consequences for the safety for these road users. Especially when these proposals are made to protect pedestrians.
End quote.

In **2004** the then Minister of transport was called to the position regarding [7] DRL and replied:

Commence quote:
The BIVV (Belgian Institute for Road Safety) has not recommended any measures to the federal government. At this moment, I am not convinced of the benefit of this measure. First there are objections about the visibility of motorcyclists and secondly we live in the centre of Europe and not in the North and so it is during the day which is less dark and finally, this rule is far from being environmentally friendly.
End quote.

A proposal [8] and a resolution[9] were put to the Belgian Senate. The proposal is for DRL throughout the year. In the Chamber (House of parliament) there is a proposal [10] for DRL only in winter months.

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[5] Source Traffic education Antwerp Police.
[6] Complete text : handelingen 11 oktober 2001.
[7] Complete text : bulletin 057 vraag 0175.
[8] Complete text : http://www.senate.be/www/webdriver?MIval=index_senate&M=3&LANG=nl
[9] Complete text : http://www.senate.be/www/webdriver?MIval=index_senate&M=3&LANG=nl
[10] Complete text :
http://www.dekamer.be/kvvcr/showpage.cfm?section=flwb&language=nl&cfm=flwbn.cfm?legislat=51&dossierID=1667&inst=K

In the debate of the Senate[11], of July 2005 this subject was mentioned again.
A number of Senators point to scientific investigations to find evidence towards the positive consequences of DRL. Therefore, we find it unreasonable that scientific investigations against DRL are not shown. In the following chapter, a number of points from the scientific world are revealed.

The Minister of Transport quoted:

Commence quote:
I wonder whether have to wait for further technical evolution to vary the use of lights following the circumstances. With an overexposure of light we could start to blind one another. Let's not evolve to a society where pedestrians will wear fluorescent vests and helmets, in order to let cars, with or without their lights on, to have the privilege of the road. I hope that the Belgian Institute (BIVV) for road safety does not become The Belgian Institute of 'bright ideas' road safety.
End quote

4. Studies that do not support DRL Findings

4.1. Study in 1979 by Lund[12]

During the first steps towards DRL, Lund carried out an evaluation of the impact on traffic. The accident figures showed that there was no decrease rather there was an increase of accidents.

4.2. Medical remarks on DRL

4.2.1. What is light, and what are the effects?

White light is a ray between infrared (wavelength of 770 nanometre) and ultraviolet light (wavelength 380 nanometre). The headlights of a vehicle will focus this beam in the eyes of another driver, even if the beam hits the eyes indirectly. The same thing happens when we light a reflector indirectly, light will reflect. Especially the blue light from halogen lamps and metal halide xenon high intensity discharge lamps (HID) can provoke blindness and diminish the visibility range of the driver. This problem will always stay, even with specially designed DRL lights.

When people get older, the sight diminishes and the chance of cataracts[13] becomes greater. Medical scientific research has shown that not only people with cataracts, but also people who have had laser corrections have a greater chance of temporary blindness.

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[11] Complete text : http://www.senate.be/www/webdriver?MIval=index_senate&M=3&LANG=nl
[12] Lund H.V. (1979)Rådet For Trafiksikkerhedsforsknlng Akademivej Bygning 371 2800 Lyngby Tlf. (02) 88 53 00 Giro 6548644 Case No. 4.1.2 (Choice Of Lighting) Working Paper No. 2. Effect of motor cyclists' use of running lights based on accident data during the period of 1st May, 1977 - 30th June, 1978.
[13] oogaandoening (grauwe staar)

4.2.2. Some medical reactions

DRL in a visual field (especially bright moving stimuli) attracts attention.
The eye is forced to focus on the light, thereby detracting attention from less prominent objects. No 'scientific' study will be able to disprove these facts. Changing blindness, inattentional blindness even inattentional amnesia, crowding phenomena, multitask problems, interference of too many inputs, worsen the situation further.

Univ.Prof. Dr. Peter Heilig (Austria)

Can Daytime Running Lights Cause Change Blindness?
No scientific evidence supports the political decision in favour of daytime running lights. Road safety cannot generally be improved by this measure. Increasingly, pedestrians, riders, animals and objects are escaping the attentiveness of drivers. This fact is irrefutable. Thus - cui bono? It can not be justified to threaten one part of the population while 'protecting' drivers.

The phenomenon 'change blindness' (technical term in cognition psychology) and other distracting, irritating and -worst case scenario- disabling factors in connection with DRLs and headlights (glare, macula-stress, adaptation levels) during daytime can cause fatalities. Quod erat demonstrandum. (ref Macula-Stress-Test)

Cognition psychology is teaching us that the driver's attention is caught by the DRL and at the same time pedestrians, riders, obstacles on the road etc. can be overlooked very easily. In addition, there is insufficient knowledge regarding 'change blindness' (elicited by DRL) which can cause additional problems.

Children are the highest at risk and cannot be protected by reflectors and reflective clothing during the daytime. No alerting signal of sufficient brightness would stimulate the retinae of DRL drivers. Even LED-blinking diodes would be too weak in bright sunlight or under daylight conditions for indicating an 'obstacle' on the road. DRL are bringing incalculable risks for all traffic participants.

Univ.-Prof. Dr. Peter Heilig University of Vienna/Austria

Dazzle Danger Sunday Telegraph 16 November 2003
Further to the correspondence about the use of car headlights in daylight (Letters, Nov 9), may I stress the unpleasant effects of dazzle on eyesight, particularly on the middle-aged, elderly and people with blue (lightly-pigmented) eyes. The mass of headlights, particularly in the evening rush hours, causes confusion to pedestrians, who cannot estimate the speed of a vehicle, as only the headlights can be seen.

Dr. Henry Warson, Solihull, West Midlands

I believe DRLs and all these new types of lighting devices on cars are causing serious eye damage. There has been a steady increase in patients complaining about eye stress due to glaring headlights. This is something new and it is my opinion these lights are dangerous and should be banned.

Dr. Richard Galatis 31 January 2002 USA

4.3. Environmental impact

As supporters of DRL, these people are still playing with numbers and statistics. In the proposal to the Belgian Senate the figures of CO^2 give a rise from 0.5 % to 1.5%.
Is this with adapted DRL lights? ETSC calculated a cost of 200 million euro due to pollution. They report a cut of 38% when DRL lights are used.

Exhaust gasses are more than CO^2 alone. Recently in the Flemish parliament there was[14] a discussion on the consequences of fine dust and NOx due to slow traffic (every time a car pulls up, it needs more energy). In other EU countries those two values are dominant in the decision of new projects. In Maastricht (The Netherlands) public transportation is taken out of traffic because their pollution is way over the limit. Therefore we find it strange that these values are not considered as part of the calculations of the impact on the environment.

On March 30th 2005, Dr. Pieter Tans[15] made a report about the level of CO^2 worldwide. Compared with 1990, the level increased from 315 to 378 ppm or by 20%. For the UK it was calculated that by accepting DRL, this should mean an increase of an extra 1.85 million tons of CO^2. At this moment it would be approximately 560 million tons CO^2 on a yearly basis.

Furthermore we can find no study about the impact on oil supplies. At this moment scientists send out strong signals that the fossil fuels are depleting. Should we speed things up?

Up to this point in time, vehicle constructors do not adopt specialised DRL lights. Is this technology planned in the short term or in the long term?

It is strange that a Working Party in Geneva spends months on trying to diminish the thickness (by microns) of lightbulb threads. Since there are billions of lightbulbs every year this will lead to an astonishing 250,000 kgs of toxic Thungsten waste. With DRL, when lights keep on burning during daytime (75% of the traffic is during daytime), it would increase to 350,000 kg of toxic waste, since the lifetime of a lightbulb stays the same, but if it is used more then it will have to be replaced more often.

4.4. Test period in France

Last year France carried out a test period with DRL during the winter months. Following this period, the authorities, with limited result in favour of DRL, did not mention anything about the results. Our colleagues from FFMC could not find any physical evidence about the positive influences of DRL.

[14] 2de trimester 2006
[15] director of the US government's Climate Monitoring Diagnostics Laboratory, part of the National Oceanic and Atmospheric Administration (Noaa) at Mauna Loa Hawaii

5. Examination of studies in favour of DRL

In February 2000 Stephen Prower of the BMF[16] wrote a report on DRL and the studies that were published on this topic.

5.1. Thirty years on: Do daytime lights on cars reduce accidents?

Evidence from monitoring studies

In the winter of 1972, Finland enacted the world's first DRL (Daytime Running Lights) law. The drivers of all vehicles were compelled to have their lights on during the daytime. During the following two winters, fewer elk and deer happened to cross the road during the daytime, so daytime multi-party accidents in Finland fell (1).

On that basis, in 1977 Sweden also made it compulsory for drivers to have their car lights on in the daytime all the year round. To date Norway and Denmark, in Northern Europe; and Canada and Hungary, elsewhere in the world, have followed (2).

Monitoring studies following the introduction of each law were conducted. Ignoring the occurrence of other accidents besides animal accidents, the study of the Finnish winter claimed that the law been a success.

A preliminary study of the Swedish law (1979) stated that the change in legislation had made no difference. But after extensive statistical remodelling of the data, the final study (1981) claimed instead that the new legislation had been a success.

Studies of the Canadian (1994) and Hungarian (1995) legislation claimed likewise that the new laws had been a success.

But the studies of the Norwegian (1986 & 1993) and Danish (1993) legislation made equivocal or adverse findings (3).

At the same time lay critics scrutinised the Finnish, Swedish, Canadian, and Hungarian data; discovered discrepancies or unreliable findings (4); and disputed the claims of success.

Then in 1995 academic critics Theeuwes & Riemersma in Holland reanalysed the Swedish data, and made the 'revised' finding that the Swedish law had made no difference (5). None of the laws were repealed.

Instead, first in 1996, Elvik re-analysed the data in Norway of all of the monitoring studies of daytime lights legislation for cars (as well as a number of car fleet studies) together. He then made a 'meta-finding' that the laws had in fact been an overall success (6).

Second in 1997, Koornstra et al in Holland re-analysed the data of the studies, using a common method separately. They then made 'revised' individual findings, which once again, showed that all of the legislation had been successful. Indeed the findings went further: they

[16] British motorcyclists federation http://www.safespeed.org.uk/~dadrl/docs/BMFCritiqueKoornstra1997.pdf

demonstrated a progressive increase in the effectiveness of daytime lights from Southern to Northern latitudes (7).

Nevertheless, the findings of Elvik and Koornstra et al fail to stand up to critical scrutiny: Elvik 1996: The lay critics had revealed, by ‘disaggregating’ the Finnish authors' data of multi-party accidents into separate data of multi-vehicle accidents, pedestrian accidents, and other accidents, that, as above:

1. Only animal accidents decreased after the introduction of the Finnish law. Likewise, by disaggregating the Swedish authors' two-year by two-year data into separate year by year data, they had revealed that:

2. Multi-party accidents were in fact higher in the second year after the Swedish law than in the last year before the introduction of the legislation.

With his method, Elvik ‘snubbed’ the lay critics. Compounding the ‘offence’ of authors of the original study, he took the ‘aggregated’ data of each study country, but instead of subsequently disaggregating it, he ‘re-aggregated’ the data of all of the studies together yet again. Elvik's final presentation of findings from the combined data of all of the countries did not therefore, in the spirit of critical review, reveal—and seek to explain—the discrepant findings within, or between individual study countries.

Rather it concealed the discrepancy in the findings more thoroughly than the presentation of the authors of the original study.

Koornstra et al 1997: Equally, Koornstra et al did not in fact, as they claimed, employ a common method to analyse the data for every country. On examination, fatally to the ‘consistency’—and so scientific validity—of their findings, they employed discrepant methods.

Two damaging points that had been noted by the academic or lay critics were:
1. The failure of the Swedish findings ‘in favour of’ daytime lights to achieve ‘statistical significance’
2. The Norwegian findings ‘against’ daytime lights.

In response, Koornstra et al first disaggregated the Swedish data for reanalysis into separate summer and winter data, and thereby ‘bent’ statistical significance to the favourable final analysis of the original Swedish authors (8).

They then in turn applied the same method to the Norwegian data. But the method failed to ‘upset’ the unfavourable analysis of the Norwegian data by the original Norwegian authors (9).

Accordingly, part way through the Norwegian reanalysis, Koornstra et al abandoned the method, and re-aggregated summer and winter data10. By the new method they then successfully achieved also a ‘revised’ analysis of the Norwegian data that was now ‘in favour of’ daytime lights11.

So the findings of Elvik and Koornstra et al do not ‘rescue’ the study findings, and ‘restore’ them in favour of daytime lights for cars.

Rather, to sum up, the evidence of the monitoring studies remains an inconclusive mish-mash of favourable, equivocal and adverse findings.

Method of monitoring studies

Given the findings of the monitoring studies, it might seem unnecessary to go on to consider also their method. But in fact the most severe criticism of the claimed findings of the studies in favour of daytime lights goes not to the study findings themselves, but to the study methods.

Thus largely the method that the studies employed was to analyse the study data for a reduction of daytime multi-vehicle (or multi-party) accidents as measured by the 'odds-ratio': namely the ratio of multi-vehicle to single-vehicle accidents in daytime divided by the ratio in night time.

The odds-ratio might afford a 'specific', and so satisfactory, measure of the effect of daytime lights if the ratio of multi-vehicle to single-vehicle accidents were constant throughout the daytime and night time. But the ratio of multi-vehicle to single-vehicle accidents is not constant. Rather it falls and rises with changes in traffic density12.
So by its formulation the odds-ratio will not just respond to a reduction of daytime multi-vehicle accidents from the greater use of daytime lights.

It will also respond in identical fashion to a reduction of night time single-vehicle accidents from a lower volume of late evening driving.

The deficiency might be overlooked if during the 1970s and 1980s, at the time of the studies, the volume of late evening driving had been stable.

But notoriously in the study countries, the period coincided with an aging driver population; a changing pattern of evening social activities; and police activity directed against drinking and driving.

Or to sum up, the evidence of the monitoring studies is made up of findings that on scrutiny are derived by a method that is irremediably unspecific and worthless.

Prima facie case

Motorcycle studies suggest that accidents seriously 'start to happen' when a driver ignores the right of way of a motorcycle when it is less than 3 seconds (e.g. 88yd at 60mph [80m at 97kph]) away from him or her.

If the driver of the other vehicle is not alert, the distance may be longer (13).

Likewise for cars, it can be taken that the distance is of the same order.

But at less than 100yd a car is clearly visible. Indeed a study found that, under perfect viewing conditions, people could still see a car at more than 3000m (1.85 miles) (14).

Correspondingly the object of daytime lights for cars is not to reduce accidents by making the car more 'visible', but by making it more 'conspicuous', i.e. noticeable.

Against the background, in 1975 Swedish authors conducted a series of experiments intended to establish a satisfactory specification of daytime lights for cars.

The specification would assure a greater detection distance of the car 1) in central vision, and 2) at 30° peripheral angle, in daytime, without aggravating glare to unacceptable levels on lit roads in night time (15).

On the basis of their findings, by way of a practical compromise16 between night glare, and daytime conspicuity, the Swedish authors recommended white 200 candlepower daytime running lights at least 50cm² (7.8sq in) in area.

Four adverse side effects of daytime lights for cars can be anticipated in the circumstances:
1) As reflected in the objects of the Swedish authors' specification, daytime lights may cause 'specific' glare, namely glare on lit roads at night that adversely affects individual other road users. The glare may be minimised by a compromise intensity of illumination of daytime lights. But as the Swedish authors found, beyond a certain point, glare cannot be further reduced without also losing the benefits of daytime lights.

2) Daytime lights may cause 'general' glare, namely glare in daytime or night time that aggravates the perceptual 'hostility' of the existing road scene to all road users.

3) 'What attracts, also distracts'. A light that is powerful enough to act as a peripheral stimulus, and so 'attraction', at 30° is also powerful enough to act as a 'distraction' at the same angle.

4) Driver and other road users may fail to give way to a car for other reasons besides that they failed to notice it.

As explained above, the 'critical' distance at which drivers fail to give way to another vehicle may be less than 100 yards.

At such a distance other reasons, such as that the driver under estimated the speed and distance of the car, are more plausible than if he failed to notice it.
If so, automotive daytime lights may give drivers a dangerous false sense of confidence that other drivers will give way to them, when in practice a significant number of them will not do so.

Further, apart from the side-effects, whereas in 1978, English authors found that 8.7% more pedestrians noticed a motorcycle using daytime lights, just under four years later in 1982, they found that only 4.8% more pedestrians did so17.

Or in short, pedestrians were 'acclimatising' to motorcycle daytime lights.

Similarly, one may expect that awareness of daytime lights for cars will also be substantially diminished over time by the same process of acclimatisation

Or to sum up, daytime lights may make cars more noticeable. But on the other side of the coin, they have important side effects, and the effect to make cars more noticeable diminishes with time, so may not endure.

Conclusion

A highly critical verdict cannot be avoided.

Automotive daytime lights have important potential adverse side effects. The prima facie case in their favour is equivocal. Daytime lights must therefore be supported by evidence.

However the evidence of the monitoring studies is conflicting, and inconclusive. Even if it were not so, the studies measure the effect of daytime lights using an unspecific method. Correspondingly their findings are unreliable.

In 1972 daytime lights were first made compulsory in Finland. They have now also been made compulsory in at least five other countries. Yet thirty years on, reduction of accidents from daytime lights on cars remains unproven.

Stephen Prower
Wednesday 9 February 2000

(1) Andersson et al 1976: In the Swedish-language main text of their paper, Andersson et al list separate data of multi-party accidents under the heads of multi-vehicle, pedestrian, and 'other' accidents. 'Other' multi-party accidents, in turn, they explain, are to a large extent animal accidents: 'Övriga flerpartsolyckor innehåller till en stor del djurolyckor'. Per Lehtimäki 1984, reciting compensation statistics, between 1970 and 1975 in Finland, elk (Alces alces, or moose) and white-tailed deer (Odocoileus virginianus, or Virginian deer) accidents rose from some 400 to 1500 per annum. Andersson et al, by contrast, recite road accident statistics.

They report 515 'other' accidents in the winter of 1972/73, and 487 in the winter of 1973/74. By comparison with night time accidents, the figure of daytime 'other' accidents was exceptionally volatile in Finland during Andersson et al's study period. Thus for the two winters of their 'before' period (1970/71 & 71/72), total daytime other accidents were 640 and night time other accidents 830. By contrast for the two winters of the 'after' period (1972/73 & 73/74), the total was 294 and 707. To break down Andersson et al's findings, they found a fall in the odds-ratio for multi-party accidents from the before period to the after period of 1.88 to 1.76. The separate figures, on the one hand, for 'other' accidents—gratis the halving of daytime accidents in the after period—were a fall of 1.35 to 0.79. But on the other hand, for multi-vehicle accidents, they were a trivial change from 2.27 to 2.25, and for pedestrian accidents, again, a trivial change from 0.90 to 0.91.

Lehtimäki 1984 conducted an extensive study of elk and white-tailed deer accidents in Finland from 1965 to 1979. The period included the full period of Andersson et al's study (1968–1974). Lehtimäki found no evidence that elk or deer responded to vehicle lights at all.

(2) Norway: 1985; Canada: 1989; Denmark: 1990 Hungary: 1993, 1994.

(3) Andersson et al 1976 Holló 1995;Andersson & Nilsson 1979, 1981; Vaaje 1986; Elvik 1993; Arora et al 1994 Hansen 1993

(4) Finland:

- Effectively no change of multi-vehicle or pedestrian accidents following law—decrease only of 'other' accidents, (comprising to a large extent animal accidents)

Sweden:

- Fall of multi-party accidents only in first year after law—Recovery of multi-party accidents in second year after the introduction of legislation to a higher figure than in last year before the introduction of legislation.

Canada:

- Decrease of multi-vehicle accidents for one-year-old cars built in the first year following the new law—But unexplained a lower decrease for brand-new cars built in the second year following the introduction of the legislation on daytime running lights.

Hungary:

- Confusing background of other road safety measures
- No information of pedestrian accidents
- Fall of multi-vehicle accidents and pedal cycle accidents taken together—But only if rear-end multi-vehicle accidents excluded from analysis

(5) Theeuwes & Riemersma 1995

(6) Elvik 1996

(7) Koornstra et al 1997

(8) Ibid pp 96–102
(9) Ibid pp 102–112

(10) Ibid pp 112: 'Because of the significant differences between the summer and winter DRL-effects and their variances, one must not estimate a DRL-effect by an analysis of annual totals, but by the average of summer and winter DRL-effects'

(11) Ibid pp 112–114

(12) To illustrate the corresponding sensitivity of the odds-ratio to changes in traffic density, the hour of onset of darkness changes relative to working hours—and so to the hours of greatest traffic density—through the course of the year.

Andersson et al 1976 published a table of the monthly odds-ratio values for multi-vehicle accidents in Finland for 1968–1974. During the period, the figure of the value ranged from a winter low of 1.29 (Dec 1974) to a summer high of 6.22 (Aug 1974). [To give scale, as noted earlier, Andersson et al relied upon a fall in value of the odds-ratio of just 1.88 to 1.76 for their finding 'in favour' of daytime lights.]
(13) Olson et al 1981: Olson et al conducted a 'gap acceptance' experiment with volunteer motorcycle riders. The riders travelled along a 55–70kph (34–43mph) thoroughfare at a distance of up to 3sec (46–58m [50–64yd]), behind a 'lead car', and recorded whether car

drivers at intersections infringed their right-of-way. Some 5% of car drivers at intersections did infringe the riders' right-of-way; yet none of the riders had an accident.

(14) Hörberg & Rumar 1975

(15) Ibid

(16) Hörberg & Rumar 1975's 'ideal' compromise the specification would have been yellow daytime running lights of candlepower 100 ± 50cd (night time), or 1000 ± 500cd (daytime), being at least 70 cm² in area. But they felt constrained due to practical considerations to specify a single intensity of illumination for both daytime and night time.

(17) Fulton et al 1980, Donne & Fulton 1985: To render the findings more precisely, the figures of 8.7% and 4.8% represent the difference between:

- The percentage of pedestrians at the same site in Nottingham in 1978 and 1982 who noticed a motorcycle using a 40W low-beam headlight in daytime (24.4% and 21.5%)
- The percentage who noticed a 'control' motorcycle not using daytime lights (15.7% and 16.7%).

5.2. The FEMA[17] report 2003 on DRL.

In response to the debates in the EU parliament on DRL in 2003, a report on DRL [18] was published on behalf of the Federation of European Motorcyclists Association (FEMA). The authors, Antonio Perlot and Stephen Prower gave an overview of the position of motorcyclists.

[17] Federation of European Motorcyclists' Associations
[18] volledige tekst: http://fema.kaalium.com/docs/DL3331a.PDF

6. Further considerations on DRL

6.1. Motorcycle riders disappear in the lights of other motorised traffic

Example with DRL .

Example without DRL.

6.2. MAIDS[19] study, an analysis of motorcycle accidents

In this major study on motorcycle accidents the strange fact appeared that in almost 75% of the accidents, the rider is not to blame. A common argument is that drivers did not see the rider. The UK even came up with a special term: "SMIDSY" or "sorry mate I didn't see you" accidents. For the second consecutive year, the acting Federal Minister of Mobility has, together with the Belgian Institute for Road Safety, the Flemish and Walloon community, and MAG Belgium, launched a campaign concerning this problem. This is in the hope that the rest of the motorised traffic will pay due attention towards motorcyclists.

As mentioned in the previous point, DRL will not make any change. DRL focuses on conflicts between cars and not between cars and motorcycles. Even now, we as riders are not noticeable in traffic.

In the literature we can find a number of publications. In his book "inleiding in de sociale verkeerskunde"[20] by Wildervanck C., we find some interesting remarks:

- The motorcycle "disappears" amongst the other road users.
- Difficulties in estimations of the speed and distance of the motorcycle.
- Expectations and attitudes by the car driver:
    - A motorcycle is not recognised as a motorcyclist, it becomes a light source.

[19] Motorcycle accident in-depth study. http://maids.acembike.org/

[20] Sociale verkeerskunde" is an part of a study about knowledge concerning what traffic, mobility, traffic infrastructure do to the social life of citizens. For example if they build a roundabout near your house, the stopping and accelerating of traffic can make too much noise. It calculates also when the policies make (mobility) life more expencive and what this will do to the more vulnerable citizens (can they maintain the up keep of their car)

6.3. Making sacrifices?

Promoters of DRL have by their own choice, made an indirect choice, a theoretical prognosis that in most cases is based on scarce evidence and does not to take in account vulnerable road users – cyclists, pedestrians and motorcyclists – and contributes to the pollution of the environment. Based on what criteria can anyone decide to tolerate more traffic victims in other categories? How meaningful is it to sign international treaties like Kyoto and others, when it is common knowledge that the impact on the life of this globe will be tremendous?

6.4. Even cyclists have arguments and thoughts against the introduction of DRL

As with motorcyclists, the union of cyclists have raised objections and concerns about DRL. They find that there is no simple comparison between the various EU member states.
With regards to infrastructure, there are too many differences between countries (e.g. building houses besides every road in Belgium) and natural differences (northern light phenomenon in Scandinavia).

Official position of the bicycle union in 2005[21]:

Press releaset, wednesday 30 mach 2005
Daytime Running Lights:

The cyclists' union demands extra attention toward a fairer cycling infrastructure, this is a counter measure to the negative consequences of DRL.

The legislative proposals for DRL, using lights during daytime, are abundant. Following the first proposals of the ex-member of chambers Jos Ansoms and a member of chambers Jef Van den Bergh, the Senators Wouter Beke, Jacques Germeaux and Flor Koninckx have found themselves in the spotlight. Also at European level, the question has been raised and discussions held regarding a decision for the obligation of using headlights during day time.

The cyclists' union has pertinent questions about the studies that simply argue that there are no negative effects for the road safety of cyclists. Our common sense tells us that the bicycle infrastructure in Belgium is not ready for DRL to be made mandatory. Where bicycles are mixed with motorised traffic it is obvious that cyclists, who don't have such powerful lights, are less seen or not seen at all by motorised road users.

The cyclists' union remains sceptical, even after reading the recent studies from The Netherlands which put in doubt the so called negative effect towards cyclists. It is reasonably reassuring from the first reading but it is unrealistic to import the Dutch or Danish context to Belgium, there are too many differences between these countries.

The big difference remains the infrastructure for bicycles: Where Holland and Denmark have safe, separated bicycle paths from the main road, bicycles in Belgium are still mixed with motorised traffic, even on roads where the speed limits go up to 70 ort 90 km/hour. It is

[21] http://www.fietsersbond.be/Index.asp?pageurl=./Archief/DayTimeRunningLightsinfoApr2005.asp

precisely this mixed traffic that will have a lethal effect and not the so called safety advantage. Due to the over exposure of lights from motorised traffic, bicycles will disappear with all the safety problems.

If we want Daytime Running Lights in Belgium, we must emphasise that the efforts to build a safer and better infrastructure must be given priority without delay, simply in order to prevent the extra death and injuring of cyclists.

6.5. Colossal lobbying from industry in favour of DRL

We know that there is a major lobby network from the industry to promote DRL. Traffic safety gives extra value for their product, in this case the car industry. Arguments such as "Extra Safety" give "Extra Euros".

Also the automotive lighting industry shows considerable interest, the lifetime of their product will be dramatically shortened with DRL. The number of working hours will stay the same, only this number will be reached more rapidly.

6.6. Will the financial welfare of the state be privileged?

As all studies have shown, greater consumption of fuel will be a fact for all vehicles. Following the ETSC study this would come at an extra cost of 3 billion euros for Europe. The currant price of fuel is made up of more taxes than the actual cost of the fuel; more consumption will give a greater tax benefit to the state.

6.7. Motorised transport only for the happy few?

Within Social Transport, several investigations have been held on the necessity of mobility and the right to the possibility of personal transport. As identified in a number of these investigations, people must have a minimum net income of 1000 Euros a month to own a car. The part of the income that is used for (car) mobility is still rising. With DRL these costs will increase once more, not only the costs of fuel consumption but also the costs of the technological innovations that will increase the purchase cost of a car. The existing lack of transport will affect more people.

6.8. Transparency inside the EU?

As seen in the varying attitudes of EU member states we have different rules throughout Europe. Some countries have mandatory DRL the whole year around, others only in winter months, some have differences in or outside urban areas and some have no rules (except at night time) Transparency?

In a summary of touring[22] (Belgian union of car drivers) an overview was published:

(Head Lights on in Europe) (Where, When, Fine)
Bebouwde kom= urban area
IP5 in Portugal?

Verplicht gebruik van lichten overdag in Europa

	Waar ?	Wanneer ?	Boete ?
Denemarken	binnen- en buiten bebouwde kom	het hele jaar door	70 €
Estland	binnen- en buiten bebouwde kom	het hele jaar door	35 €
Finland	binnen- en buiten bebouwde kom	het hele jaar door	50 €
Ijsland	binnen- en buiten bebouwde kom	het hele jaar door	60 €
Italië	buiten bebouwde kom	het jaar door	35 €
Kroatië	binnen- en buiten bebouwde kom	het hele jaar door	40 €
Letland	binnen- en buiten bebouwde kom	het hele jaar door	15 €
Litouwen	binnen- en buiten bebouwde kom	tussen 1 nov en 1 maart	12 €
Noorwegen	binnen- en buiten bebouwde kom	het hele jaar door	180 €
Oostenrijk	binnen- en buiten bebouwde kom	het hele jaar door	15 €
Polen	binnen- en buiten bebouwde kom	vanaf 1 okt tem eind februari	70 €
Portugal	enkel op de IP 5	het hele jaar door	60 €
Zweden	binnen- en buiten bebouwde kom	het hele jaar door	55 €
Slowakije	binnen- en buiten bebouwde kom	tsn 15 okt en 15 maart	50 €
Slovenië	binnen- en buiten bebouwde kom	het hele jaar door	40 €
Tsjechië	binnen- en buiten bebouwde kom	vanaf eind okt tem einde maart	16 €
Hongarije	buiten bebouwde kom	het hele jaar door	40 €

TOURING

[22] www.touring.be

7. Remarks on the proposal

7.1. The Senate

At this point there is a proposal for a resolution from the same authors cited previously. Since their argument remains the same, we will look closer at the text of the resolution.

Quotes from the text:

Due to the new traffic laws, which are mandatory from March 2004 and emphasise more controls and better sanctions (read much higher fines) the number of casualties has diminished rapidly. Never the less, Belgium has a long way to go to become a model state inside Europe.

Remarks from MAG Belgium vzw: Looking at the figures for speed control we see that there are far fewer controls carried out, but that the number of speeding tickets has risen. According to the police rapporteur, the reason was that the camera tolerance was lower than in the past.

The main reason for accidents is that a road user sees another too late or doesn't see him at all, even during the daytime.

Remarks from MAG Belgium vzw: Indeed this is a big problem for motorcyclists. To impose DRL on other forms of transport, won't change anything with regards to motorcycle accidents. Furthermore, there are a number of examples showing the reason for not seeing each other. This is more due to other obstacles (bigger vehicles, trees, road signs etc).

From the accidents statistics (Source BIVV) from 2001 it is clear that 66.7% of accidents happens during daytime. The number of accidents on common roads (69.2%) is nearly 10% higher than on autobahns and at traffic lights (59.9%).

Remarks from MAG Belgium vzw: firstly, what will be the development of this debate? Continuing to work with old data? Apart from that, was a comparison made with the fact that 85% of traffic circulates during the day?

Half of all accidents that occur during the daytime are due to poor visibility, or at crossroads where this figure would increase to 80%.

Extensive research has been carried out regarding measures to improve the visibility of road users; one of these measures, which can count on a lot of attention and support from the European Commission, is the so-called *Daytime Running Lights* (DRL).

Lights on motor driven vehicles give a lot of advantages. They improve the visibility of the vehicles because the contrast between the vehicle and the environment increases. Also, vehicles are noticed more quickly, even in the periphery of the angle of the eye. Finally, they improve the judgement of distances and speed by other road users; People estimate a vehicle with lights on much closer and this influences the positive behaviour, for example while overtaking another vehicle.

Remarks from MAG Belgium vzw : Behaviour measurments are alway temporary measurements. People do adapt. A clear example of this is the decision in Holland to narrow the driving lanes. Initially, speed was automatically reduced. One year later, the effect had gone. The original speed returned but this time on much narrower (and dangerous) roads.

8. Conclusions

We ask you to vote NO on the subject of DRL because:

- The impact on motorcyclists is unknown. It is impossible to simulate the present complex traffic in a laboratory.
- The impact towards other vulnerable road users has not been investigated and therefore is unknown.
- The impact towards the environment is minimalised in relation to CO2 exaustion.
- The impact on crude oil reserves has not been investigated and so unknown.
- The final extra costs will be paid for by the consumers, this will end in more social exclusion.
- The dubious role of the "caring for safety" industry and the tax hungry government is worth thinking about. Is it in our or their interests?!

MAG Belgium

Senate hearing

June 22 2006