

# Inquiry into Motorcycle safety in Victoria Australia

## CHAPTER 4 THE CASE AGAINST DAYTIME RUNNING LIGHTS

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The arguments against compulsory, hard-wired running lights fall into seven categories:

1. The dangerous effect of the lights under some circumstances;
2. Unproven benefits;
3. The legal implications of compulsory daytime running light regulations on insurance and civil and criminal lawsuits;
4. Practical issues associated with maintaining permanent headlights on some vehicles;
5. Cost;
6. The discriminatory nature of the legislation which selects motorcycle riders for special consideration;
- and
7. Effective alternatives which are available.

These issues are discussed in detail in this chapter.

### **4.1 DANGEROUS EFFECTS OF DAYTIME RUNNING LIGHTS**

The possible dangers associated with daytime running lights fall into three categories:

1. Effect on other drivers' vision;
2. Glare; and
3. Increased risk-taking.

#### 4.1.1 Effect on other drivers' vision

A bright light within a driver's field of vision can initiate a reflex response. The light stops his or her scanning process and causes the eyes to fix in the direction of this bright light. This increases the likelihood that objects within this now static field will be seen. Conversely, fixation naturally stops the scanning process and may physically reduce the likelihood of seeing other objects outside the now static field of vision.

Thus, in particular cases, daytime running lights which successfully attract attention may restrict peripheral sensitivity. Fear that general searching behaviour of motorists will decline in response to general daytime headlight use, has also been expressed in Australia and by members of the International Daytime Running Light Steering Committee funded by the Directorate-General of Transport for the European Community.

Further, compulsory daytime running lights on motorcycles can increase drivers' expectation that all motorcycles are lit. They will therefore be less likely to see unlit motorcycles.

From the point of view of road safety, it is important that drivers do not believe that an oncoming vehicle is further away than it really is. Bright coloured cars appear to be closer than dark coloured cars when they are the same distance away. Daytime running lights below 300cd also increase the likelihood that drivers will underestimate the distance to a vehicle, particularly if it is in traffic without running lights, but this likelihood declines with stronger lights.

Motorcycle riders alleged that:

*...if a motorcycle appears as a silhouette against the setting sun then a headlight may render the cycle totally invisible.*

The Committee was unable to determine the validity of this assertion. The Federal Office of Road Safety released a report which included a series of photographs of lit and unlit motorcycles emerging from the setting sun. The Committee found this evidence unconvincing.

The Committee therefore concludes that there may be a number of situations when daytime running lights are dangerous. This issue needs serious investigation.

#### **4.1.2 Glare**

Glare is the effect of light on the eyes which inhibits vision by increasing blinking and aversion of the eyes or even decreased visual capability. The negative effects of glare are intensified when viewed through a mirror.

Older drivers are more sensitive to glare than younger drivers.

The problems with glare which face designers of daytime running lights are different from those which face those who decide the specifications of night-time headlights because the lights serve different purposes. Daytime running lights must be bright enough to increase visibility whereas night-time headlights must be bright enough to illuminate objects at a distance which allows the rider to take evasive action.

The International Daytime Running Light Committee follows Attwood in inferring that there is risk of glare during the day when the running light intensity is greater than 1000cd. When viewed through the rear-view or side-view mirror at dusk, daytime running lights above 2000cd present considerable discomfort. This effect can be minimised by balancing the size of the light against its intensity but, even with an appropriate 150mm diameter, lights exceeding 2000cd are not recommended.

Therefore the Committee concludes that the specifications for daytime running lights should not exceed 2000cd.

#### **4.1.3. Increased risk-taking**

It is alleged that daytime running lights have both immediate and long-term potentially dangerous effects on the behaviour of other drivers.

Daytime running lights may increase drivers' immediate risk-taking behaviour. Motorcycles are over-represented in collisions in which the other vehicle attempts to turn against the motorcycle's right of way. However, they are equally more likely to be involved in these crashes when the other driver approaches from the opposite direction or from the adjacent direction. These two types of collision differ because one involves frontal vision and the other peripheral vision. They are similar in that both involve gap-acceptance or risk-taking behaviour. Therefore, the smaller, more dangerous gaps in front of lit motorcycles accepted by drivers undertaking left-hand turns, but not accepted by drivers undertaking right-hand turns in front of motorcycles, is consistent with increased risk-taking.

In the longer term, recent publications by the SWOV Institute for Road Safety Research in The Netherlands and the International Committee on Daytime Running Lights, argue that observational and behavioural processes may in time lead to a decline in road safety, and that drivers' tendency to adjust to reductions in perceived risk will increase the average speed of drivers. Their comprehensive research into the effects of daytime running lights in the Benelux countries will be completed by September 1993.

Therefore, the Committee concludes that these allegations have some validity and should be tested before daytime running lights on motorcycles are made mandatory.

#### **4.1.4 Summary and conclusion**

Although the Committee accepts that overseas research is still inconclusive, it is concerned that motorcycle daytime running lights may restrict other drivers' scanning processes, change drivers' long-term behaviour to accept greater risks, and increase drivers' underestimation of distance.

As well, daytime running lights with intensities over 2 000cd cause glare.

Considering the information available to it, the Committee does not support the decision of the Federal Minister for Land Transport to require hard-wiring of motorcycle daytime running lights before these issues are resolved.

Also, the Committee recommends that the Minister for Transport does not introduce compulsory motorcycle daytime running lights in Victoria.

## **4.2 UNPROVEN BENEFITS**

Laboratory and off-road research provides theoretical information about whether visibility measures are capable of decreasing collisions between motorcycles and other vehicles. However, this research does not allow for the real traffic and other environmental effects which determine whether or not a motor vehicle crash occurs. Therefore, it does not prove that conspicuity measures will increase road safety in practice.

There has been extensive research into the safety effects of motorcycle daytime running lights in the United States and long-term evaluations of general daytime running light legislation in Scandinavia.

However, the safety effects demonstrated in these studies are inconclusive and inconsistent. This is due to different survey methods, lack of legitimate controls, differences in external factors, particularly ambient light intensity and differences in the laws themselves and their compliance rates.

Therefore, the Committee concludes that it is not justified in extrapolating any of these data to the 1992 Australian motorcycle situation. The Europeans are facing a similar problem. They have recently

withdrawn proposals to introduce general daytime running light specifications and established an International Steering Committee on Daytime Running Lights to reassess their safety potential.

#### **4.3 THE LEGAL IMPLICATIONS OF COMPULSORY DAYTIME RUNNING LIGHTS**

In Victoria, all vehicles must comply with Australian Design Rules in order to meet roadworthiness requirements. Most insurers have exclusion clauses to cover non-compliance with these roadworthiness or other vehicle standard requirements and they may rely on their breach to refuse to pay a claim. There is evidence to suggest that over 50% of all vehicles have faulty lighting equipment. That is, their intensity would not comply with design requirements even after cleaning.

When a motorcycle with comprehensive or third party property insurance is required to comply with Australian Design Rule 19/01 or compulsory daytime running lights and is involved in an accident, two issues become relevant:

1. How does the insurance company determine whether the daytime running light was on?
2. If the insurance company believes the light was unlit, under what circumstances may it use this fact to refuse the claim?

Other drivers involved in motorcycle collisions may try to attribute liability to motorcycle riders by claiming the motorcycle's daytime running light was unlit. On the other hand, motorcycle riders may assert that the light was on. The facts will be difficult to prove if the light is damaged and there are no independent witnesses.

If an insurer attempts to deny liability on the grounds that the motorcycle falls within the insurance policy's roadworthiness exclusion clauses, the Act places the onus on the insurer to prove that, on the balance of probabilities, the light was off or did not comply with roadworthiness specifications so that, in legal terms, the holders of motorcycle insurance policies are protected.

Insurance companies have indicated to the Committee that they are unable to refuse claims on the grounds of non-compliance if the act or omission could not reasonably have caused or contributed to the loss. The Act places the onus on the policy holder to prove that the non-compliance did not cause or contribute to the collision.

However, s54(1) of the Act can be interpreted to limit even this protection for the insured. If the unlit daytime running light increased the statistical, rather than actual, risk or if it made the investigation of the claim more difficult, the claim may be reduced by the amount which fairly represents this increased risk or cost to the insurer. Alternatively, the insurer may calculate this reduction on the basis of the additional premium it would have charged or excess it would have imposed if it had known before the event that the light was off.

These consequences also apply to civil suits in damages which road crash casualties may bring under the alternative provisions of the Transport Accident Act 1986. In those cases, the injured party must prove, on the balance of probabilities, that the light was off and that this act or omission caused or contributed to their injury and that the motorcycle rider knew that the light was off and that this increased the risk.

Daytime running lights are unlikely to be implicated in criminal charges laid against motorcycle riders under s318 of the Crimes Act 1958 which result from a fatal daylight collision. If they are, the onus is on the prosecution to prove beyond reasonable doubt that the light was off and that this omission contributed to the crash.

Therefore, the insurance and legal implications of daytime running lights for motorcycle riders depend on the frequency with which individual insurance companies attempt to deny liability, the way car drivers are alerted by the "lights on debate" to try to avoid liability, and the degree to which the motorcycle riders are prepared to challenge assertions against them in the civil courts.

The Committee recognises that the parties to a dispute involving these issues are unlikely to have equal negotiating power in an out of court settlement.

The Committee is therefore of the opinion that use of daytime running lights should not be the basis for voiding of indemnity under property insurance cover. It urges insurance companies to specifically exclude daytime running lights from consideration in their policies.

Further, the Committee considers that Australian Design Rule 19/01 should be excluded from the general roadworthiness requirement in Victoria that motorcycles comply with Australian Design Rules.

Other insurance issues will be considered in the Committee's Second Report.

#### **4.4 PRACTICAL ISSUES ASSOCIATED WITH MAINTAINING PERMANENT HEADLIGHTS**

Two important practical issues associated with compulsory daytime running lights were raised before the Committee. These are the effects of dirt and difficulties with maintenance.

##### **4.4.1 Dirt**

Theoretical minimum daytime running light intensities which have been shown to improve motorcycle visibility under the ambient light intensities expected in Victoria, must be increased to allow for dirt and faults. Dirt can reduce daytime running light intensity by 50% and between 8% and 34% of forward-facing lights on English vehicles deliver less than their specified minimum intensity. In The Netherlands, about

10% of daytime running lights are malfunctioning. Between 16% and 28% of dipped headlamps exceed glare specifications.

The Committee concludes that it is impossible for daytime running light specifications to be established, because of practical problems with maintaining daytime running light intensities within the 1 600cd to 2 000cd range required to achieve visibility effects without causing glare.

#### 4.4.2 Maintenance

The Australia Post Victoria submission to the Committee said it would be difficult to implement compulsory daytime use because of the limited battery charge on their Honda CT110 fleet. Other submissions claimed similar problems for older machines.

Recent publicity has indicated that these considerations are also influencing the new motorcycle market. Yamaha TT250 and TT350 machines will not be imported after 1 March 1992 because their six volt electrical systems are unable to carry the load of daytime running lights. The Committee is concerned that choice of motorcycles with small engine size will be restricted when special Australian design requirements make their manufacture commercially unviable.

Accelerated wear and tear on lamps resulting in more vehicles on the road at night with defective lighting, has now been raised for consideration by the International Committee on Daytime Running Lights.

Therefore, the Committee considers that road safety measures which encourage use of motorcycles with smaller engine sizes (discussed in the Committee's Second Report on this Inquiry) should not be compromised by a requirement to have sufficient capacity to maintain daytime running lights.

### 4.5 COST OF COMPULSORY DAYTIME RUNNING LIGHTS

Evidence before the Committee and a study of the literature suggests that hard-wired daytime running lights may add to the cost of motorcycles.

In addition, compulsory, full time use of motorcycle daytime running lights will require the same standard of wiring as hard-wired running lights and will therefore incur additional modification costs to some motorcycles.

Hard-wired and compulsory daytime running lights will both also add to motorcycle maintenance and running costs and increased bulb and petrol consumption.

The Committee has been unable to determine the size of these increased costs to individual motorcycle riders.

Only managers of large fleets have access to the aggregated expenses of many vehicles which enable their accurate determination. In Sweden, fleet owners have criticised the cost of compulsory daytime running lights. In Canada, a study of non-military National Defence Department vehicles showed that daytime running lights cost the equivalent of \$(A)2 per year in extra in electrical maintenance costs alone. No calculation of running costs or other maintenance costs was included.

The Federal Office of Road Safety estimates that the total cost of daytime running lights to individual motorcycle owners is between \$(A)10 and \$(A)12 per year. They did not itemise these estimates and, therefore, the Committee is unable to explain the discrepancy between the Australian and Canadian calculations.

The International Committee on Daytime Running Lights has now raised this issue for consideration.

The Committee considers the real expense of hard-wired daytime running lights to motorcycle riders will depend on the way manufacturers of both motorcycles and their lighting components decide to impose the costs, and on the pattern of motorcycle use Victorians adopt in the future.

### 4.6 DISCRIMINATION AGAINST MOTORCYCLE RIDERS

Drivers consider motorcycle riders are risk-takers who operate outside the usual road rules and motorcycle riders believe that compulsory daytime running lights on motorcycles confirms their opinions. They say it implies riders are at fault and places the onus for safety initiatives on the shoulders of motorcycle riders to the exclusion of other road users.

Accident analyses and visibility research supports the motorcycle riders fears.

There is no difference in the proportions of drivers involved in motorcycle-car and car-car accidents who failed to see the other vehicle. Further, the positive effects of daytime running lights on detection distance and time, noticeability and gap acceptance are generally greater for vehicles other than motorcycles.

The Committee is of the opinion that there is no justification for motorcycles only to have compulsory daytime running lights.

### 4.7 EFFECTIVE ALTERNATIVES

In Victoria, 84% of multi-vehicle motorcycle accidents occur in metropolitan Melbourne or rural towns.

Further, collisions involving right turns against motorcycles comprise the greatest single category (25%) of motorcycle injury crashes in Melbourne and 78% of these accidents occur at signalised intersections.

Right turn against collisions are successfully managed by introducing right-turn phase control measures (for example, the right turn arrows).

The Committee is of the view that these traffic management measures which are known to be effective and do not discriminate between drivers of different vehicles should be encouraged.

## 4.8 RECOMMENDATIONS

The Committee recommends that:

1. The Minister for Transport advise the Federal Government of the possible dangers inherent in specifying daytime running lights for motorcycles be hard-wired, and request they delay implementation of Australian Design Rule 19/01 until the report of the International Committee on Daytime Running Lights is available and its implications for Australia are examined.
2. The Minister for Transport advise the Federal Government that the light specifications included in Australian Design Rule 19/01 are inappropriate for Australian conditions.
3. The Minister for Transport amend the Road Safety (Vehicles) Regulations 1988 to exclude Australian Design Rule 19/01 from roadworthiness requirements for motorcycles registered in Victoria.
4. The use of daytime running lights for motorcycles remains voluntary.

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