Motor vehicles: bull bars

Standard Note: SN/BT/1216
Last updated: 24 August 2009
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Bull bars are steel grilles often fitted to the front of four-wheel drive vehicles. The potential danger of bull bars has been the subject of research and debate over several years. There have been various attempts to introduce legislation to ban them in the UK. The EU legislated to control the types and specifications of frontal protection systems in 2003 and 2005 with the intention of making what was once a dangerous fashion statement a safety feature of modern vehicles. A new European Regulation was adopted in 2009, to come fully into force in November 2009.

Standard notes on other road safety issues can be found on the Roads page of the Parliament website.

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1 UK actions, 1997-2003

In October 1997 the Labour Government issued a consultation paper asking whether action should be taken to tackle the 'problem' of bull bars. It said:

> Bull bars, or roo-bars, fitted to 4-wheel drive vehicles, vans and lorries have become increasingly common in this country in recent years. Originally they were fitted for off-road purposes, especially in wild and remote areas. Over recent years, however, they have been mostly fitted to vehicles rarely, or never, used off the road, and seem often to be no more than cosmetic accessories. Although some softer bull bar designs are now on the market, the majority of bull bars fitted are of a shape and hardness which research clearly shows make them more likely to injure pedestrians in collisions than if the vehicle were not fitted with a bull bar. In 1994, the police collaborated with the Transport Research Laboratory to survey accidents involving bull-bar equipped vehicles, and this survey indicated that there were in that year about 2 or 3 additional fatalities and about 40 additional serious casualties as a result of vehicles being equipped with bull-bars. These figures are more likely to be an under-estimate than an over-estimate. Moreover, if there is a further increase in the number of vehicles fitted with aggressive bull-bars, the number of casualties can be expected to rise further. **The Government therefore believes that action is needed against aggressive bull-bars.**[1]

In April 1998 the Government indicated that it was considering the responses to the consultation and how it intended to proceed.[2] In March 2000, the Government published its road safety strategy which indicated that the Government would back a European Commission (EC) proposal on the issue:

> The UK is backing proposals for the European Commission to bring forward a Directive in early 2000 to make car fronts safer. This would be a challenging initiative which could ultimately reduce fatalities and serious injuries to pedestrians by up to 20%. Such a Directive would also be the best way of preventing particularly dangerous bull bars being fitted to vehicles.[3]

2 EU actions, 2003-09

2.1 Background

Prior to 2003, the European Commission had been working for some years on a draft Directive to improve the fronts of cars from the point of view of the pedestrian. In September 1995 the European Parliament voted to ban bull bars and encourage more pedestrian-friendly vehicle design;[4] however, this was later abandoned after some Member States took the line that the technical standard was not sufficiently scientific and it would be better to wait for a longer term Directive on pedestrian protection.

In 1999 a European Scientific Committee (EEVC-WG17)[5] presented a report to the Commission containing a proposal for a Directive on pedestrian protection; essentially, new car models would be required to pass a series of technical tests (involving instrumented headforms and legforms) which would indicate how they would interact with a pedestrian. Following an approach from manufacturers, the Commission asked the Joint Research

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1 DETR, *Bull bars - Consultation on options for national action*, 28 October 1997, para 1 [emphasis in original]
2 HL Deb 29 April 1998, cc290-292
3 DETR, *Tomorrow's roads: safer for everyone*, March 2000, para 7.16
4 OJ L 38, 16 October 1995
5 these are 'ad hoc' committees set up by the Commission to look at specific issues; they allow Member States to collaborate on research

Centre (JRC) – a scientific group not previously involved in pedestrian protection – to look at the issues. European car manufacturers, through their representative bodies, lobbied for a negotiated approach to pedestrian protection, bearing in mind the costs the industry would have to bear. The Commission announced in July 2001 that it had decided in principle to proceed on a negotiated basis and had produced a proposal for agreement on which it would consult Member States and the European Parliament.[6] This was ultimately superseded by proposals put forward in 2003.

2.2 Directive 2005/66/EC

In October 2003 the European Parliament and the Council published its proposal for a Directive on frontal protection systems, amending Directive 70/156/EEC. This stated:

> Systems providing additional frontal protection of motor vehicles ("frontal protection systems") have been increasingly used in recent years. Some of these systems constitute a risk to the safety of pedestrians and other road users in the case of a collision with a motor vehicle. This proposal aims to provide added protection to pedestrians and other vulnerable road users in the event of a collision with a motor vehicle fitted with a frontal protection system. The proposal lays down requirements that must be complied with by frontal protection systems either as originally fitted to a vehicle or put on the market as separate technical units. As the construction of motor vehicles is covered by framework Directive 70/156/EEC establishing the EC type-approval system for vehicles, components and separate technical units, the proposed requirements will also be part of that system.[7]

The Government gave a summary of how the Directive had changed in a Memorandum to the House of Lords Select Committee on the European Union in July 2005:

> The original Commission document proposed that new designs of frontal protection system, intended for fitting to a new vehicle or supplied as an after-market accessory, should be subject to tests that would effectively outlaw all bull bars; both metal and softer plastic ones. It was considered that this approach would be counterproductive since the use of the new designs of soft plastic bull bars can improve the pedestrian friendliness of many of the vehicles to which they are fitted. The revised proposal will have the effect of allowing the approval of well designed plastic units whilst still outlawing the traditional metal bull bars. We believe that the overall effect of this change is an improvement in pedestrian safety.
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> The original proposals have been discussed extensively within European Council Working Groups and in European Parliamentary Committees, and agreement has now been reached on a revised proposal. The latest draft would effectively outlaw aggressive systems such as rigid metal "bull bars" whilst permitting the use of compliant (non-rigid) systems that offer broadly equivalent levels of protection to the vehicle to which they are fitted (the "base vehicle"). In cases where the base vehicle is not subject to the Pedestrian Protection Directive, the fitting of a frontal protection system that satisfies the proposed requirements may improve the level of head protection offered.[8]

Ultimately, this was adopted as Directive 2005/66/EC in October 2005. The Directive should be read in the broader context of the 'framework directive', Directive 2003/102/EC relating to the protection of pedestrians and other vulnerable road users.

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6 details given in the UK consultation document: DTLR, *Pedestrian protection – consultation*, 30 August 2001

7 COM (2003) 0586, 10 October 2003, para 1

8 EU Committee, *Correspondence with Ministers - March 2005 to January 2006* (forty-fifth report of session 2005-06), HL 243, 23 January 2007, section 90

The 2005 Directive required that bull bars ('frontal protection systems') must meet certain technical requirements where they were fitted to passenger cars and light commercial vehicles. The technical requirements of the Directive applied not only to frontal protection systems fitted to a vehicle as original equipment but also to systems supplied as separate technical units. The Directive laid down technical requirements for the testing, construction and installation of frontal protection systems. These requirements formed part of the Community type-approval procedure established by Directive 70/156/EEC. These provisions applied from 25 November 2006 for new types of vehicles as well as for new types of frontal protection systems supplied as separate technical units and from 25 May 2007, they applied to all new vehicles and all frontal protection systems available as separate technical units. In the UK, a breach of these requirements is punishable by a maximum penalty of 12 months' imprisonment and/or a fine of £20,000.

2.3 Regulation 78/2009/EC

The 2005 Directive also stated that by 25 August 2010 at the latest, the Commission would re-examine these provisions in the light of technical progress and experience gained. In October 2007 the Commission published its proposal on how to proceed.[9] In March 2008 the Department of Transport issued a consultation based on the Commission's proposal. The consultation letter explained:

> The European Commission proposal seeks to repeal Directive 2003/102/EC dealing with "the protection of pedestrians and other vulnerable road users" and also Directive 2005/66/EC concerning Frontal Protection Systems (Bull Bars) of new passenger cars. A proposed Council Regulation, whose technical requirements are to be defined in a separate Commission Regulation, will replace these two Directives. The technical requirements for Frontal Protection Systems will remain unchanged by the proposed Regulation but changes are proposed for Pedestrian Protection.
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> The proposal aligns broadly with the proposals for the "global technical regulation", including an extension of scope. Significantly, the Commission is proposing a reduction in the passive safety element of Phase II while including the use of active safety technologies. The Commission suggests that the active safety measures will deliver very significant pedestrian casualty reductions.[10]

In May 2008 the European Scrutiny Committee published an update from the Government as to the progress of the planned Directive. This stated that the original proposal had been revised in a number of ways and that the UK Government was content with the progress that had been made during negotiations, "which goes a long way towards meeting its original concerns and many of those of interested parties"; that the road safety benefits of the proposal would outweigh the costs; and that it should continue to support the proposal.[11]

Finally, in January 2009 the Parliament and the Council adopted Regulation 78/2009/EC on the type-approval of motor vehicles with regard to the protection of pedestrians and other vulnerable road users. The Regulation repealed both the 2003 and 2005 Directives. The preamble to the Regulation explains:

> (3) Experience has shown that legislation concerning motor vehicles has often been of a highly detailed technical content. It is therefore appropriate to adopt a regulation

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9 COM (2007) 560, 3 October 2007

10 DfT, *Consultation on the proposal for a Regulation on the protection of pedestrians and other vulnerable road users*, 17 March 2008

11 European Scrutiny Committee, *Twenty-fourth report of session 2007-08*, HC 16-xxii, 30 May 2008, section 7

> instead of a directive in order to avoid discrepancies between transposing measures and an unnecessary level of legislation in the Member States, as there will be no need for transposition into national legislation. Therefore, Directive 2003/102/EC of the European Parliament and of the Council of 17 November 2003 relating to the protection of pedestrians and other vulnerable road users before and in the event of a collision with a motor vehicle and Directive 2005/66/EC of the European Parliament and of the Council of 26 October 2005 relating to the use of frontal protection systems on motor vehicles which provides requirements for the installation and use of frontal protection systems on vehicles and thus a level of protection for pedestrians, should be replaced by this Regulation in order to ensure consistency in this area. This implies that Member States repeal the transposing legislation of the repealed Directives.

Specifically on frontal protection systems, the Regulation states:

> *Article 10*
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> **Application to frontal protection systems**
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> 1. National authorities shall refuse to grant EC type-approval or national type-approval of a new type of vehicle with regard to it being fitted with a frontal protection system, or EC separate technical unit type-approval of a new type of frontal protection system, which does not comply with the requirements laid down in Sections 5 and 6 of Annex I.
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> 2. National authorities shall, on grounds relating to frontal protection systems, consider the certificates of conformity to be no longer valid for the purposes of Article 26 of Directive 2007/46/EC and shall prohibit the registration, sale and entry into service of new vehicles which do not comply with the requirements laid down in Sections 5 and 6 of Annex I to this Regulation.
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> 3. The requirements set out in Sections 5 and 6 of Annex I to this Regulation shall apply to frontal protection systems supplied as separate technical units for the purposes of Article 28 of Directive 2007/46/EC.

Sections 5 and 6 of Annex I set out the specific legform and headform tests that must be performed and the relevant construction and installations provisions.

3 TRL reports

3.1 A study of accidents involving bull bar equipped vehicles, 1996

A substantial examination of the effects of bull bars was undertaken in 1994 by the Transport Research Laboratory (TRL). The report, published in 1996, derived from the 1994 police survey of accidents in 1994.[12] The estimates for the number of extra casualties caused by bull bars were lower than had been forecast. A short summary on the Department for Transport website states:

> This report first provides a review of the literature on the effects of bull bars. The numbers of accidents recorded as being bull bar accidents in the police survey, and the numbers of those for which copies of the accident reports have been requested and received from the police, are shown by type and severity. The police reporting rate is analysed. Pedestrian and two-wheeled vehicle accident cases, including some obtained from other sources, are analysed. Estimates are made of the proportions of pedestrian and two-wheeler rider casualties of each severity who would not have been injured at that severity had the bull bar not been present, and of the average number of additional injuries per casualty. Estimates are made of the probable numbers of

[12] TRL, *A study of accidents involving bull bar equipped vehicles* (Report 243), December 1996

pedestrian and two-wheeler rider casualties in Great Britain arising from accidents involving bull bar equipped vehicles, and hence of the probable numbers of additional casualties and injuries caused by the presence of the bull bar.

It is estimated that there may have been about 35 pedestrian and two-wheeler rider fatalities, and about 316 seriously injured casualties in accidents involving bull bar equipped vehicles in Great Britain in 1994. It is estimated that of these there were about 2 or 3 additional fatalities and about 40 additional serious casualties as a result of vehicles being equipped with bull bars. The small sample sizes of the study mean that all these estimates are subject to a large degree of uncertainty. The estimates of additional fatalities and serious casualties are more likely to be under-estimates than over-estimates.

The estimated benefit to those pedestrians who are currently hit by vehicles fitted with bull bars, that could be obtained if bull bars were not fitted, is a saving of 6 percent for fatalities and 21 percent for seriously injured casualties. These proportions are comparable with those anticipated from draft proposals for a directive on pedestrian protection by cars (11 percent and 26 percent respectively of those hit by cars).

In sixteen fatal pedestrian and two-wheeled vehicle accident cases studied in detail by TRL the estimated probability of survival had the bull bar not been fitted ranged from 40 percent to zero. It is the combination of all these probabilities which results in the estimates of 2 or 3 additional fatalities.[13]

3.2 Assessment and test procedures for bull bars, 2000

The former Government later commissioned the TRL to develop a pedestrian protection test procedure, which could be used to assess the injury risk of bull bars. As part of this study TRL investigated the pedestrian protection performance of a range of vehicles with and without bull bars fitted.[14] A short summary on the Department for Transport's website states:

> This project measured the aggressiveness to vulnerable road users of a range of bull bars and the vehicles to which they are typically fitted. The test procedures used to assess the bull bars and vehicles were based upon those developed for the draft proposal for a pedestrian protection Directive with minor modifications to reflect the different construction of bull bars. The main objective was to determine a test procedure suitable for regulating the aggressiveness of new bull bars. The feasibility of developing guidelines for a visual examination that could accurately estimate the aggressiveness of bull bars was also considered.
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> The steel bull bars tested have been shown to have a high risk of causing serious and life threatening injuries in impacts with the heads of children and the abdomen and chest of adults and taller children, whereas the plastic bull bars tested were found to be comparatively safe. The base vehicles tested, of the type to which these products are usually fitted, were also found to be aggressive, but far less so than the steel bull bars. Most styles of bull bars were found to cause concentrated contact forces on the pedestrian. This, combined with considerations of bull bar designs, led to the conclusion that, to be effective, a standard would have to test the bull bar at a higher speed than the 'safe' speed of the base vehicle.[15]

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13 DfT, *Project: A Study of Accidents Involving Bull Bar Equipped Vehicles*, 3 December 2003
14 TRL, *Assessment and test procedures for bull bars* (Report 460), 2000
15 DfT, *Project: Assessment and Test Procedures for Bull Bars*, 5 September 2003

TRL later published a technical report for the European Commission on the feasibility of measures relating to the protection of pedestrians.[16]

[16] TRL, *A study on the feasibility of measures relating to the protection of pedestrians*, June 2004