



BENDING THE BEAM

Barry Norris explains how you adapt your motorhome's headlamps for driving in mainland Europe

Left-hand drive vehicle headlights are designed for driving on the left, but this means if you cross the Channel in your motorhome, your dipped headlights will shine into oncoming vehicles.

UK and European road vehicle lighting regulations prohibit the use of headlamps that cause undue dazzle or discomfort to other people using the road. Hence, when travelling on the Continent, you must take steps to prevent this.

Reasoning that you will not be driving at night is not an excuse to avoid the problem, as tunnels and bad weather often dictate that headlights are used. It is a requirement of insurance companies that you comply with the law, hence it is doubly important that, when you travel on the Continent, you deal with your headlights so you are fully road legal and avoid the risk of fines commonly used by continental police.

True, the insurance company will only be interested if you are involved in a night-time accident, but without any outward signs of effort to adapt your headlamps to left-hand drive (LHD) mode, your illegality could come to the attention of the local police at any time.

The term 'beam benders' normally refers to stickers applied to headlights to resolve the issue of dazzle in Europe.

However, the term is a misnomer because bending beams is virtually impossible with a sticker, particularly stickers used on modern variable-shaped headlamp fronts. What a sticker can do is block the left-hand side of the dipped beam to prevent dazzle.

A well-designed adaptor will minimise loss of forward illumination by just blocking the left-hand kick-up of the headlamp pattern (area A on the diagram), used to illuminate the likes of road signs and subsequently causes dazzle when on the Continent. The main beam alignment can be disregarded as you would not normally use it with oncoming traffic.

Use of black tape to block the beam can be harmful to modern polycarbonate headlight fronts as the black tape will cause a build-up of heat and may cause crazing of the plastic. So, unless



Using a borrowed headlamp alignment machine, but a wall should suffice at home
Inset: Typical instructions – one position fits all headlamps



Headlamp beam pattern showing "kick-up" area A which needs to be masked to eliminate glare to oncoming drivers on the Continent

specifically recommended by the vehicle manufacturer, use a beam adaptor (blocker) which inhibits a build-up of heat.

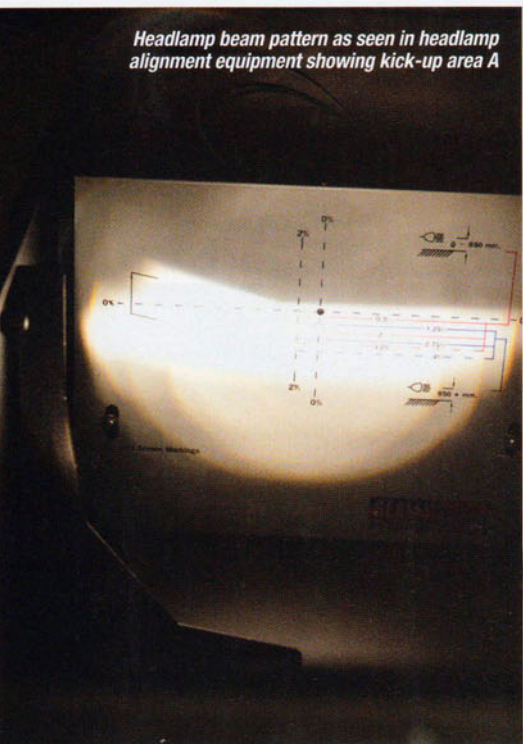
Some vehicles have the facility for converting the headlamp beam from RHD to LHD pattern and often the manufacturer will recommend the conversion being carried out by a dealer. This will, of course, require you to drive in the UK with non-compliant headlamps for a period before and after your trip. In this situation dazzle can be reduced by setting your headlamps to their lowest setting (meant for when you are sitting low at the back) but this will provide very limited forward visibility at night and is not ideal nor is it likely to comply with the UK's MoT requirements.

Eurolite appears to be the most widely available brand, being found in most cross-Channel ferry shops, in Halfords and through the AA. However, there is much more choice online and, with a trip to France in my Peugeot Boxer Autoquest in the offing, I purchased a selection of adaptors to test their effectiveness using a borrowed headlamp alignment machine.

Using my Boxer headlamps for testing also effectively tested the adaptors for a large number of 2006-on motorhomes with Fiat Ducato and Citroën Relay base vehicles.

Prior to the test, the headlamps were switched on to warm up for 10 minutes as several manufacturers advised a warmed headlamp helped adhesion. The light

Headlamp beam pattern as seen in headlamp alignment equipment showing kick-up area A



The 'test' motorhome fitted to headlamp alignment equipment



Eurolite's large two-sided instruction sheet for multiple fitting situations

performance testing was carried out on the passenger side, using one of the sample adaptors stuck to a clear plastic film and held tight against the headlamp and this method allowed repositioning of the adaptor. The concern was that human error in locating the adaptors would affect the performance ratings and by adjusting the adaptor the positioning tolerances could be judged.

The other adaptor was placed directly on the driver's side headlamp to check how well the adaptor adhered to the glass. The light output check was limited to checking the change in headlamp beam pattern shown in the alignment equipment, concentrating on the ability of the adaptor to remove the kick-up area (A).

The testing (see panel on next page) threw up some unexpected results, with only Eurolite performing when located as the supplied instructions and several adaptors started to peel away by the time the test was completed.

Clearly, from the testing, it appears there are no great problems with the basic concept of an adaptor to block glare as all the products performed when placed in the correct location. What is difficult is producing an effective adaptor that is flexible enough to mould to all shapes of headlamp surfaces and one that does not create a build-up of heat.



Adaptors tested (excluding latest Eurolite derivative)

The testing did not check the heat build-up as this was beyond the scope of the equipment available. It is considered likely that all the items tested would perform better than black sticky tape on this criterion.

Then there is the requirements to provide an adhesive layer which is not only effective in keeping the adaptor on a headlamp during all weather conditions, headlamps on or off, but is

also possible to remove after a lengthy trip. In this test some of the products were too inflexible for use on modern curved headlamps and to compound the problem some of the same inflexible adaptors used very narrow peripheral strips of adhesive to bond the adaptor to the headlamp.

Finally, the third absolute essential is to fit the adaptor in the correct place. It was surprising that only one manufacturer, Eurolite, produces a comprehensive instruction sheet with fitting details specific to about 800 vehicle models and further instructions for unnamed models and updates available on its website. All the other manufacturers' products provided just one or two location for all headlamps.

Most of the manufacturers claim that fitting need not be precise and, as I understand from Eurolite, its product can be about 5mm out of position and still perform. All bar the Eurolites failed to perform in the instructed location and had to be relocated well beyond what could be considered human error before they removed glare.

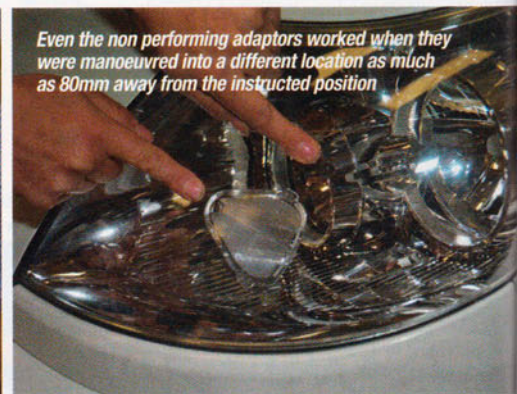
The testing indicates to me that there is no one-location-fits-all and specific instructions are required depending on vehicle model and headlamp type. If you have already bought one of the non-performing adaptors you need to locate it with the aid of a headlamp alignment machine as I did. It is possible to go some way



Adaptor with clear tape used to position adaptor for optimum performance for test purposes



Translucent paper supplied with Streetwize and RAC products to help determine the centre of the beam for locating the adaptor



Even the non performing adaptors worked when they were manoeuvred into a different location as much as 80mm away from the instructed position

towards a better fit by edging your vehicle close to your garage door and fitting at night with the dipped beam on. You should just be able to see the left-hand kick-up and, to help locate the top line of light, switch on full beam and you'll see how the beam height increase above the top line.

As a user of Eurolites for some years (and I normally fit mine while waiting in the ferry queue), the testing did give me confidence that they do work as, with modern clear glass lamp

fronts, there are rarely any markings on the glass to guide you. Fitting is simply a matter of eyeing in the position from the diagrams.

The important thing to remember when fitting to a dipped beam location is to kneel or crouch directly in front of the headlamp centrally and with your eyeline level with the dipped bulb position. Standing above or to one side will dramatically throw the adaptor out of position.

If all this seems like a lot of hassle and you are a frequent visitor to Europe, you can buy

headlamp stone guard protectors to which you can fit adaptors just the once and then clip on the protectors as and when needed. If you normally use headlamp protectors, you must not fit adaptors to the headlamp under the protector as this could result in a build up of heat.

European law deems it is an offence to drive a vehicle if any road lamp is not working and the driver is not in a position to replace blown lamps. It's therefore good practice (and often a legal requirement) to carry a spare bulb kit. ■

Product/operation	Suitability & ease of fitting	Performance at instructed location	Removal	Other comments
Metro Beam Benders <i>See note 2</i>	Amazon website says, "fits all headlamps, ideal for patterned headlamps" Packaging says, "for use with pattern-style headlamps" Easy fit, simple instructions – one location fits all based on dipped beam bulb position	Some reduction of light in left-hand area, but the dazzle-causing kick-up area remained lit <i>See note 1</i>	Easy, it started to peel off by the time the test was completed. One of the larger products tested, but probably having the least area of adhesive surface	Product made of fairly stiff clear plastic, which appeared to be unsuitable for headlamps with a lot of curvature
Metro Super Beam Benders	Front packaging says, "fits most headlamp styles" Rear packaging adds, "for the latest clear headlamps use Beam Benders Ultra" Easy fit, simple instructions – one location for patterned lens and another for clear headlamps, both based on dipped beam bulb position	No discernible effect on the dazzle-causing kick-up area <i>See note 1</i>	Easy, but signs of lifting at centre and on one other edge at end of test A modest amount of adhesive surface area	Product of stiff clear material and not suitable for anything but the most modestly curved headlamp
Metro Beam Benders Ultra	Packaging says, "fits even the most curved headlamps" A little fiddlier than some. Instead of removing a backing paper you need to place adaptor on to an adhesive film before applying to headlamp. Simple instructions – one location fits all, based on dipped beam bulb position	No discernible effect on the dazzle-causing kick-up area <i>See note 1</i>	Easy	Made of more flexible material than the other two Metro adaptors and with a larger adhesive contact area it stands a better chance of staying put in long term use
Streetwise Headlamp Beam Converter	Packaging says, "easy application on all vehicles" A translucent paper is supplied to show up the beam outline and you align the hole in the centre with the centre of the outline which is marked with a supplied adhesive dot. Except the dot didn't come cleanly off the backing paper and wouldn't stick to the headlamp. Adaptor located over bulb location, which was an alternative instruction	Some dimming of light on left-hand side but the dazzle-causing kick-up area remained lit <i>See note 1</i>	Easy	Product reasonably flexible transversely but fairly rigid top to bottom. With the combination of inflexibility and a modest amount of adhesive contact area the prospects of staying put in long-term use are not considered to be high
RAC Headlamp Convertors	Packaging says, "will easily fit all vehicle headlamps" Uses a similar location method as Streetwise product, but marker dot successfully stuck to glass	No discernible effect on the dazzle-causing kick-up area <i>See note 1</i>	Easy	A modest amount of adhesive contact area provided but with it being of a very flexible material there is a greater chance of it staying put in long-term use
Eurolite Beam Adaptors/ Reflectors <i>See note 5</i>	Packaging says "for all vehicles" The large instruction sheet is rather daunting at first glance giving instructions for just about every vehicle produced. However, if you take a few minutes to read through the instructions it becomes clear and for the Boxer/Ducato/Relay there is a specific location diagram	Dazzle-causing kick-up area removed	Reasonably easy	Very flexible material used and the adhesive contact area is over the full adaptor surface area, so likely to have good prospects of staying put long term Good comprehensive instructions

Note 1 All of the adaptors that failed to perform when located in accordance with the instructions, did perform their function (some very well) when their position was adjusted. Adjustment was up to 80mm away from the indicated location and more than can be explained away by my fitting judgement

Note 2 Beware of internet advertising, on receiving the Metro Beam Bender adaptors it was clear from the packaging that they were not intended for the Peugeot/Fiat/ Citroën headlamps

Note 3 The removal test was not representative of typical conditions where an adaptor may stay on for several months, although several adaptors are thought to be unlikely to stay stuck on the vehicle that long

Note 4 Several products claimed to bend the beam and/or showed the dipped beam being bent away from the passenger side. In none of the tests did I detect any bending

Note 5 Two versions of the Eurolite were tested. The second Eurolite is simply the latest derivative which is claimed to have several improved features, but anti-glare performance as tested appeared identical

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