

# Cycling answers

Your technical, legal and health questions answered by CTC's experts

## CARBON FIBRE QUERY MATERIALS

**Q** Could I ask for an article about carbon fibre in cycles in the mag? It's hard to get a bike without it nowadays and judging from the lack of info among members of my own local group and bike shops (including central London) there is widespread ignorance about the basics of what you can and can't do with it and how you should treat it. For example, can you clamp a beam rack around a carbon seatpost? How long should you use a frame?

Bob Hazell, Bexleyheath, Kent



**A** The short answer to that is you can't do anything with carbon fibre except what the manufacturer says you can do, or for longer than he says you can do it.

Unlike metals, which have predictable bulk properties, carbon fibre reinforced composite materials, to give them their proper name, are whatever the designer intends them to be. A component that is thus reinforced will be stiff and strong in the direction the fibres run, but stressed in another way it could be comparatively flexible and weak.

With a metal component you can tell what sort of metal and see how thick it is, and make educated guesses about its strength – including in other directions than how it's intended to

be stressed. With carbon fibre you just don't know and cannot tell. As a material it is extremely variable and utterly inscrutable. One can only presume that the manufacturer has made the product fit for its intended purpose. Take one step outside that purpose, however, and you're in unknown territory. The only advice one can give is to read the instruction book very carefully, consult the manufacturer's website, and if necessary email the service department.

Maybe some carbon seatposts are designed for the attachment of a beam rack, but unless it says so in the instructions, you'd best assume yours isn't. The bike's handbook may also mention a period after which it's advisable to replace the carbon frame and/or fork, or at least state the warranty period (for free replacement if it breaks). I'd not trust a safety-critical carbon product longer than double the time/mileage its manufacturer is prepared to guarantee it for.

As for warning of impending failure, you don't get much. The most common fault is a failure of the adhesive bond between metal inserts and the main structure, or between separately made parts of that structure. Just because the steerer tube is also carbon-fibre doesn't necessarily mean it's made-in-one with the carbon fork and I know of at least one instance of such a thing coming loose! Ultimately or due to overload (e.g. a crash) layers of fibres can begin to separate (de-lamination) and/or individual fibres may snap. This will happen without giving any clue at the surface of the component. In the aerospace field it is proposed that such failures may be detected by monitoring electrical resistance (carbon conducts, plastic doesn't) but such techniques have not been applied to bicycles. Here and now, the only way to tell that your carbon fork/crank/frame etc. is destined for landfill is to notice when it starts to

## THE EXPERTS



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become increasingly flexible.

The time to worry about your carbon bike is when it becomes even more comfortable! Until then, just enjoy using it for its intended purpose: which, sad to say, is unlikely to include touring or commuting.

Chris Juden

## CYCLEPATH OBSTRUCTIONS

LEGAL

**Q** My local Council have put 'crushes' on a cycle/footpath to stop motorcycles using the path and gaining entry to the park. I have cycled through them quite a few times but this week, whilst cycling through them, one side of the handlebar hit the barrier and I ended up on the ground with grazes and a ripped cycle top.

I was wondering if anyone else has had any problems with these and whether I could make a claim against the council? There is no warning sign about the crushes, they are painted in dark green so blend in with the surroundings, and as they are of metal are a potential hazard.

Alistair Whybrow

**A** In order to claim damages against a Highway Authority in such circumstances it is necessary to prove that the obstruction was both unreasonable and dangerous.

The Council/Highway Authority may argue that the 'crushes' were there for good reason. For example they may have had a significant problem with motorcyclists using the route as a cut-through. Whether or not a claim would succeed against the Council depends on the nature of the obstruction. It is

difficult to comment without sight of photographs. If the crashes have been in existence for many years without complaints or previous accidents then the claim may be difficult.

Through the CTC Legal Services Scheme we have, however, had some success with similar claims. For example, we recently successfully claimed compensation for a CTC member who collided with a bollard which was positioned in the middle of a cyclepath. There appeared to be no good reason for the obstruction and it was a hazard to cyclists. The member collided with it because the cyclist who was immediately in front of him suddenly swerved to avoid it. The member had no chance to avoid colliding with the bollard. In another case, we successfully claimed damages for a CTC member who collided with chain link fencing at a quay in Suffolk. The chain link fencing was a hazard because it was extremely difficult to see.

These cases very much turn on their own facts. If injury has been sustained then the CTC Legal Services Scheme can be utilised to pursue a claim for damages.

**Paul Kitson**



**– or is this no longer the case? No one is telling us!**

Recently I have contacted both local and county police desks, neither of whom have copies of the Road Vehicles Lighting Regulations. They suggested the library service. Our library has some details online, but nothing in plain English – just many references to other clauses etc.

**If we can be prosecuted for failing to abide by this law, why can we not easily discover what is the law?**

A CTC leaflet could additionally help with accessories. How many SPD users know that a clip-on plate with two reflectors is available? Also that bolt-on reflectors are made by Cat-Eye, so toe-clip users can also have a front reflector? Come on CTC, you could be a great help here, an essential one.

**Roger L Phillips, Prestatyn**

**A** As you have access to the internet at the local library, I suggest you look at the CTC website ([www.ctc.org.uk](http://www.ctc.org.uk)) and browse to: Bikes & Bits / Facts & Figures / Regulations & Standards / Lighting Regulations. Here you'll find a guide to the law, written in the closest thing to plain English that I can manage!

But I like your idea of putting this information out in a leaflet. To reach the general bike-using public, very large numbers of leaflets should be distributed to bike shops, libraries, etc. CTC does not have the means to do that; however it's a very worthy project that might therefore appeal to a sponsor. We'll look into it.

**Chris Juden**

## LIGHTS, REFLECTORS & LAW

**LEGAL**

**Q** Whilst quite prepared to believe Chris Juden (Cycle, Aug-Sep 07) that two pedal reflectors are required on each pedal, it is rather frustrating that essential legal information is leaked out in this way. Is it not possible for CTC to issue a leaflet setting forth all that a cyclist needs to know about after-dark cycling?

The Highway Code does not specify how many pedal reflectors are needed. Nor does it state, as it used to, that front and rear lamps must be attached to the frame, not to bags or clothing

## BARS AND STEMS

**COMPONENTS**

**Q** I am buying a new frame with an A-headset. Currently I am using a pair of Cinelli Criterium no.



Left: courtesy of Matt Hodges



65 bars with a diameter of 26.4mm. My son tells me I won't be able to use these on a A-head stem as modern bars have a diameter of 26mm. Do you think I could use my old bars in a modern stem? I have been looking on the internet for bars like my Cinelli but they all appear to be of square design.

Tom Dean, Cuddington, Cheshire

**A** Your son's advice is technically right – as far as it goes. But most of these stems have a separate front piece, i.e. the clamp is split in two across a diameter (unlike the old-style roadie quill stems that merely pry open from one side) and this makes them much more accommodating of a bar that is fractionally too big. It may be bad engineering, and void the warranty, but I think you'll find that your 26.4mm bar fits quite happily into a 26.0mm clamp of that design. It'll be initially gripped at only four points, at the edges of the clamp, but as you tighten the screws the clamp and bar will both distort slightly and the area of contact expand to more of the handlebar's circumference. It's best to decide the handlebar's orientation before tightening too much.

Mountain bikes had threadless headsets and front opening stems long before road bikes caught on, and for years tourists have been putting 26.0mm drops into stems intended for straight handlebars of standard 25.4mm diameter. That's 50% more difference than you have to worry about.

Hasn't your son mentioned that the latest thing is 31.8mm oversize – for road as well as mountain? So if you want to be bang up to date and have no worries about fit: get someone with a lathe to make you a pair of shims to take your 26.4 up to exactly that diameter.

Chris Juden

## CRAZY SPOKING?

### WHEELS

**Q** I was recently reading a review of the latest Shimano set of wheels.



When it came to the rear wheel, the flange on the cassette side had 10 radial spokes, which cannot transmit torque. The other side had five tangential spokes pointing forward, but you can't push a rim around, and five tangential spokes pointing backwards, that the flange can apply torque to, and pull the rim around. This wheel was driven by five spokes.

Why this crazy method of spoking?  
Mick Davey, Ludlow

**A** Whilst it's true that you can't push anything much with a thin wire spoke, the leading spokes slacken in response to twisting of the hub just as the trailing spokes tighten. If they didn't do that, the trailing spokes would have to tighten twice as much to balance the hub torque, so all 10 tangential spokes do contribute equally to driving the rim.

Harder to understand is why Shimano make the drive side spokes radial, thereby obliging the hub barrel to carry this torque across to the left. The reason is that the right side spokes are already compromised by higher tension (due to dishing) and can well do without the additional stress of driving the rim. The radial pattern, without crossings or stagger, also lets all of the right side spokes be as close as possible to the sprockets, minimising dish.

In any event, the fluctuations in spoke tension caused by drive torque are minor compared to those produced by your weight on the bike. That slackening and re-tightening with every revolution of the wheel is the main cause of spoke fatigue failure.

Chris Juden

## CONTACTING THE EXPERTS

Each issue, Cycling Answers addresses a selection of questions that we receive. We regret that Cycle magazine cannot answer all unpublished queries - in particular, medical ones. Please note, however, that general and technical enquiries can also be made via the CTC Information Office, tel: 0870 873 0060, [cycling@ctc.org.uk](mailto:cycling@ctc.org.uk). And don't forget that CTC operates a free-to-members advice line for personal injury claims, tel: 0870 873 0062.

Medical and legal enquiries for possible publication should be sent to the Editor (see p80). Technical enquiries can be sent to the Editor but will get there quicker if they go direct to Technical Officer Chris Juden (same address as the Information Office).

## LIGHTING-UP TIME

It's as well to remember that the Highway Code is merely a guide to the law and does make mistakes. Long before it became legal to fit flashing lights on a bike, the Highway Code suggested it was a good idea. That edition was hastily re-issued. Now we have a revised version that, quite apart from its controversial advice on where you should ride a bike, contains another error of law with regard to cycle lighting. Rule 60 for cyclists begins with: 'At night your cycle MUST have white front and red rear lights lit.' The error lies in those first two words; for under Rule 133 'night' is defined as the period between half an hour after sunset and half an hour before sunrise.

Lighting-up time used to correspond with those 'hours of darkness', i.e. night as defined above, excluding half an hour of 'twilight' at each end of the day. However in 1989 the Road Vehicles Lighting Regulations, in recognition of the increasing use of lights by drivers, stretched out 'lighting-up time' to sunset and sunrise. So now, in a car, it's lights on at sunset, but you can leave off the headlamps proper for half an hour.

On a pedal cycle of course, there are no sidelights as such, so for us it's a simple matter of sunset and sunrise. In 1989 this extra half hour of battery wastage and dynamo pushing caused a storm-in-a-teacup of protest amongst cyclists. That a headlamp doesn't help a cyclist see in good twilight, that one used to be allowed to leave it off then, plus the continuing legal distinction between sunset and the official hours of darkness with regard to motor vehicle headlamp use, are perennial sources of confusion to which the Highway Code has just added!

Be advised: lighting-up time is nowadays any time when the sun is below the horizon. That's the law!

Chris Juden

## CARRIER STAND

### COMPONENTS

**Q** I'm looking for a rear rack that has a stand attached that goes under the rear wheel, lifting the cycle off the ground – like you see in pictures of roadster bicycles in India. Any ideas?

Roger Mann, Colchester

**A** Pashley Cycles ([www.pashley.co.uk](http://www.pashley.co.uk)) still make them for their traditional British roadster bicycles (Classic and Sovereign). The rack, which is not designed for panniers and which requires a solid axle, can be ordered for you by Pashley dealers for about £40. The nearest listed dealer to you is Colchester Cycle Stores, tel: 01206 563 890.

Chris Juden