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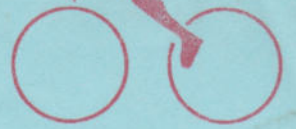
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**National Cycle Archive**



**M. Steel Cycles Ltd**



**D. STEEL**  
**FRAMES AND RENOVATIONS**  
**1993**

Manufacturers and Retailers of Quality Cycles, Frames and Accessories

**Joe Waugh**

**Dave Yates**

Works and Registered Office: Old Northumberland Yard, Howdon, Tyne and Wear. NE28 6ST. Tel: (091) 234 4275 Fax: (091) 295 0137

Shop: 2 Station Road, South Gosforth, Newcastle upon Tyne. NE3 1QD. Tel: (091) 285 1251

Shop: 41 Park View, Whitley Bay, Tyne and Wear. NE26 2TP. Tel: (091) 251 4608

Registered in England No. 512822 V.A.T. Reg. No. 297 9936 68

# M. Steel Cycles Ltd



## THE COMPANY

There has been an M. Steel in Gosforth since the late 1800s. For at least 80 of those years the name has been associated with bicycles. The business was bought by Jeff Dobson in 1945 and he traded in various locations around Gosforth throughout the ensuing years. In 1980 Geoff and Dave Yates founded M. Steel Lightweight Cycles Ltd to manufacture high quality custom frames at a factory unit in Wallsend. Joe Waugh joined the company very shortly after whilst at the height of his formidable powers as one of the best racing cyclists ever to come out of the North East. 1981 saw the purchase by the company of Geoff's shop in Salters Road, Gosforth to bring all the M. Steel named operations under the wing of the limited company, and in 1984 the business was moved to its present location in South Gosforth. During 1981-2 Joe acted as a mobile test bed for the company products. Just before the world championships in 1981 his no.1 race bike was damaged. Due to go to Belgium with the team for two weeks preparation he took a standard 531 frame from the shop and gave it a thorough testing on the Belgian pave (cobblestones!). The same bike was also used as a spare at the "Worlds".

The aim of the company has always been to produce frames of the highest quality. That we have succeeded can be judged from the fact that in 1988 we had no less than 11 National Champions in various areas of cycling, riding on frames of our manufacture and in 1989 we had our first full professional team equipped with Joe Waugh bikes. The current manufacturing team of 9 have a vast amount of combined experience. All the builders have Reynolds 753 approval and an almost fanatical pride in their work. In the finishing department any current Pro. Team or exotic "Continental" paint job can be matched as a matter of course and hand painted murals and cartoon characters are the order of the day! Almost any request in any area can be accommodated from fitting a cable stop to rebuilding a Hetchins frame from two broken ones!, from a plain touring frame to a custom built tandem.

With the Gosforth shop as our main retail outlet a new shop was opened in Whitley Bay in 1989 to expand the company's interface with the cycling public. We aim to offer the same complete service from this outlet as we do from Gosforth. The facilities at the factory allow us to do the sort of jobs that ordinary bike shops find difficult if not impossible to do. When we say "We can do anything with a bike", we mean **ANYTHING**.



## Terms of Trade

1. Frames for repair or renovation should have all fittings removed, otherwise a charge may be made. No responsibility will be accepted for fittings left on, although every care will be taken to ensure their safe keeping.
2. All prices include VAT at the current rate. The prices are subject to change without prior notice.
3. We reserve the right to charge for any extra work incurred over and above that normally associated with each job.
4. Orders must be in writing, preferably on one of our order forms. If you do not have one, then a clear sketch showing all the details you require will suffice. However we cannot accept any responsibility for unclear orders. Any alterations after the acceptance of the order must be confirmed in writing.
5. Payment. A deposit is payable on ordering a new frame as follows:
  - £50 on stock sizes,
  - £100 on custom frames,
  - £200 on tandem frames.Work on any order will not be started until a deposit is paid. The balance is due upon completion of the order. Customers will be notified in writing that their frame is ready and the amount outstanding. Mail orders should be settled prior to despatch.
6. Cancellation of order. Any customer cancelling an order more than seven days after the acceptance of the order will forfeit the deposit paid.
7. Delivery. Due to the nature of the product and the skilled, labour intensive nature of the production process, any delivery time mentioned at the time of order can only be approximate. Whilst we will endeavour to complete the order in the time mentioned we accept no responsibility for any perceived "lateness" of any order.
8. Chrome Plating. We accept no responsibility for any extra delay incurred on orders requiring chrome plating. This is sub-contracted and is outside our direct control.
9. Whilst all the models have a first preferred transfer, all our transfers are interchangeable, eg., a tourer could have Dave Yates or Joe Waugh transfers. A Gold Medal could have M.Steel transfers if you wish.
10. Carriage. We are able to send and receive frames by post. Ensure when sending your frame that the forks are removed and secured to the rear stays for protection, with a spacer in the rear dropouts. The Post Office will accept your frame properly boxed. Postage and packing to return your frame to you is £8.50, or £12.00 for next day delivery.
11. When ordering stock sized frames state clearly the model name and size.
12. Repairs and Resprays. Please state the obvious! If you want chrome plating saved, or transfers fitted, tell us, don't assume we will know. The same applies to any fittings you wish to be removed and refitted or discarded.
13. Often, faults not immediately apparent, show up during the process of renovating old frames, eg., badly corroded tubes, cracks in components etc. This makes it impractical to continue the repair. There will be a charge for any work carried out up to the point at which such faults are discovered.
14. If in our opinion the resale value of the frame is less than the cost of the repair / respray then a deposit may be required on the work.

**WE RESERVE THE RIGHT TO ALTER PRICES OR SPECIFICATIONS  
WITHOUT NOTICE IF EXTERNAL CIRCUMSTANCES DICTATE.**



## Joe Waugh Racing Frames

### Joe Waugh Prima

A high class racing frame built to a standard design to achieve a very affordable price in relation to performance. The geometry is based on feedback from racing at the highest level and 15 years experience of frame building. Built from 531C with forged dropouts and high quality fittings, these frames are built in the same jigs, by the same Reynolds 753 approved builders as our top of the range custom frames. Available in 51, 54, 57, 59 and 62 cm sizes, this is a pure racing frame with close clearances. Braze on lever bosses, under bracket tunnels, chainstay stop, bottle bosses and three cable guides on the top tube, are all included. Finish is any two colours from out chart, faded. Any other colour schemes can be accommodated as an extra, priced per our price list.

### Joe Waugh Gold Medal 93

The Gold Medal range of frames has been extensively up graded for 1993. Now a full custom frame in Reynolds 531 Designer Select, (a tubing configuration only available to small, craftsman builders), with engraved investment cast fork crown, investment cast bottom bracket and vee brake bridge, Prugnat cut out lugs and Columbus forged dropouts. Other tubing options are available such as Columbus SL and SLX or Reynolds 653 or 708 or Tange Prestige. Braze ons include lever bosses, under bracket guides, chainstay stop, 3 top tube guides, two sets of bottle bosses and a chain hanger. Each frame is the product of a comprehensive design consultation with the customer. Tailored to match the needs of the rider precisely from short time trials to long stage races the Gold Medal 93 will build into a bike that will become an extension of the riders body. Tested in the January 93 issue of "Cycling Plus", the custom "Gold Medal" was judged to be "excellent value for money" and "the bike performed very well all round. It accelerated quickly particularly up hills". Finish is any two colours from our chart, faded. Any other colour scheme can be accommodated as an extra priced as per our price list. A track version is also available.

### Joe Waugh Gold Medal MAX

This is a new introduction for 1993. Columbus Max Lite is an oversized tube with the main triangle tubes ovalized along the axes of maximum stress. Built to the same basic spec as the Gold Medal 93 and utilizing the special cast lugs to go with this tube set the resultant frame is quite different visually to a conventional frame.

# M. Steel Cycles Ltd



## **Joe Waugh** Gold Medal 731

Another introduction for 1993, the new Reynolds 731 tube set has oversize ie. 1 1/4" Down Tube and 1 1/8" top tube with Reynolds unique octagonal internal butt profile. The main triangle tubes are equivalent to 653 in strength and the rear stays are 753. The three frame joints on this frame are lugless with a cast bottom bracket shell and braze ons the same as the Gold Medal 93.

## **Joe Waugh** Gold Medal 753

The ultimate in Racing Frames. Reynolds 753 tube is heat treated to 85 tons per square inch tensile strength (531 is 50 tons), and is only available to those builders who have passed the stringent Reynolds 753 test (we have 6 such builders). This tube gives an incredibly stiff frame that will put all your effort onto the road. This tube has to be experienced to be believed! Available only as a custom frame to the same basic spec. as the Gold Medal with the addition of cast lugs. THIS FRAME IS THE BEST THERE IS.

## **Joe Waugh** Gold Medal Lo Pro

The variations on the theme of "Low Profile" are legion, so the following are simply examples of what we can do.

### **531DS.**

Including curved, sloping top tube, 26" front wheel size, lugless head and seat joints, inv. cast aero bottom bracket and aero "D" fork crown, semi vertical dropouts, shot in rear stays and internal rear brake cable. Any two colours, faded.

### **Columbus Cronos.**

This tube set has a curved seat tube allowing a much shorter rear end. 26" front wheel, lugless throughout, cast aero crown, semi vertical dropouts, shot in stays and internal rear brake cable. Sprayed in any two colours from the colour chart, faded.

### **Reynolds 753.**

To get the best out of this tube it must be silver soldered into lugs. The design of this frame with a dropped horizontal top tube and extended seat tube allows this. A 26" front wheel, investment cast lugs, aero bottom bracket and crown and internal brake cable complete the specification. Sprayed in any two colours from the colour chart, faded.



## M. STEEL Touring / Training Frames

### Lombardy

This is one frame on this list not made by ourselves. Made in Italy from Columbus Aelle tube, these frames make excellent winter / training bikes at a very sensible price. Available in red or blue with our own distinctive "LOMBARDY" logo.

Sizes: 49, 51, 53, 55, 57, 59 and 61.

### M. STEEL Super Tourer

A touring frame incorporating braze ons for cantilever brakes and rear panniers has become the "de facto" standard over the last few years. This frame is a development of our successful tourers that have spanned the world on various expeditions in the past 15 years. The super tourer frames are built from 531ST with forged, long hanger dropouts and high quality fittings in the same jigs, by the same teams of 753 approved craftsman builders, as the top of the range custom frames. Available in 51, 54, 57, 59, and 62cm sizes, the specification includes braze on lever bosses, two under bracket tunnels, chainstay stop, 3 top tube cable guides, 2 sets of bottle bosses, cantilever brake pivots, rear brake cable hanger and four point rear pannier fittings. The frame can be sprayed any two colours from our chart, faded.

### M. STEEL Hosteller

Our top of the range touring frame, upgraded for 1993, with the addition of an investment cast bottom bracket shell and a full custom package in with the price. 531 Designer Select tube is the basis for this top class touring frame. This label allows the builder to select the appropriate tube, for each area of the frame, from Reynolds vast range of 531 tubes. This ensures precise fitness for purpose in the selection. Each frame is the result of a comprehensive design consultation session to ensure the frame will build into a bike that does exactly what is required of it. The specification includes investment cast crown and bottom bracket shell, long hanger forged touring dropouts, short point lugs, two sets of bottle bosses, four point rear pannier fittings, four point low rider front pannier fittings, three cable guides on top tube, two lever bosses, two gear cable guides, chainstay stop, cantilever brake pivots, rear brake cable hanger and a pump peg on the head tube. Finish includes either single colour with lugs lined or two colours faded. Any more complicated colour schemes can be accommodated as an extra, priced as per our price list.

# M. Steel Cycles Ltd



## M. STEEL Randonnee ST

This is the machine for "fast" touring, Audax events or winter training. Effectively a cross between a racing frame and a touring frame, it has the liveliness of a racing frame but clearance to take larger tyres and mudguards. Built from 531ST in 51, 54, 57, 59, and 62cm sizes, with forged dropouts and high quality fittings of the same type as our "Prima" racing frame. This frame builds into an excellent all weather training frame for fast touring day rides. The finish is any two colours from the colour chart, faded with any other colour schemes being accommodated as an extra, as per our price list.

## M. STEEL Randonnee DS

The Randonnee DS is the custom version of the Randonnee ST. Using the same material specification as the Gold Medal 93, including investment cast bottom bracket and crown with extra clearance for mud guards and larger tyres. Built as a custom frame to customer specifications, this frame suits the "occasional racer", who wants to do other things with their bike, or the serious Audax participant. Finish in two faded colours from our colour chart, or any other scheme as an extra priced as per our price list.

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**Joe Waugh**

**Dave Yates**

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# M. Steel Cycles Ltd



## **Dave Yates** A.T.B. Frames

Since building our first "Mountain Bike" in 1983 (when most people had no idea what a mountain bike was) we have been continuously involved with the development of the A.T.B. in this country. Sponsorship of, and involvement with, various top riders like Deb Murrell over the last five years has produced much feedback from the "sharp end" of the racing world. We have also worked closely with A.T.B. journalist and author Carlton Reid, producing bikes for his many trips around Africa and various inhospitable parts of the world. Dave Yates produced one of, if not, the first raised chainstay frames in this country - The Vulcan, which the "Wrecking Crew" from MBUK Magazine described as a bike "to boldly go where no bike has gone before".

In 1990 Dave was voted "Best U.K. Custom Mountain Bike Frame Builder" by the readers of MBUK.

The result of all this experience is to be seen in our range of A.T.B. frames. The **Dave Yates** Custom models cover any variation possible or required in an A.T.B. frame. From racing in world class events to touring the far reaches of the Hindu Kush we can produce a frame to suit your purpose. If we haven't already done it we are prepared to listen to your ideas and translate your dream into reality.

Introduced in 1991, the **Dave Yates** "Diabolo" has proved extremely popular, with some 300 frames being sold to date. Tested by both MBUK and Mountain Biker International, it received glowing reports from each test crew. The frame incorporates detail usually found in only the best custom frames such as hand finished fillet brazing and a paint job created in such a way that no two frames are alike. Crafted for the rider whose budget will not stretch to a full custom job, this frame puts the **Dave Yates** name within the reach of a wider audience.

New for 93 is the ultimate custom machine, the D.O.N.K.I.S. N.O.B. (Daves Oversize No Kompromise Interactive System. Never Obviously Beaten !!!) *This must be said with the tongue very firmly in the cheek!* The basic design of this frame is the current peak of a developmental sequence of prototype frames running back to 1983. It combines a long top tube, 23 1/2 on an 18" frame, with a short rear end, 15 3/4 using 2.1 tyres, and geometry revised to make the best use of front suspension. Tubes are a mix of Columbus Max and Reynolds 753.

Another of our specialities is custom paint finishes. The efforts of our resident "artists" in our paint shop have been featured frequently in the pages of MBUK Magazine. Mountain Bikers seem to go for wilder colour schemes and we have a wide range of fluorescent, pearl and generally "bright" paint, along with the capacity to produce hand painted "cartoon" type pictures on your frame. This is a totally unique service and as far as we are aware on offer by no other UK builder.



## **Dave Yates** Diabolo Frames

Columbus Cromor O.R. frame, available from stock in 16" x 22.75", 18" x 23", 20" x 23.25", 71° head angle, 73° seat angle, 16.75" rear centres, 12" bottom bracket height and top tube cable runs. Finished in Red or Blue with our special "blown" finish, or any two colours faded.

Standard frame in Cromor. £ 299.95

As above in Columbus Nivacrome. £ 409.95

As above in **Dave Yates** Reynolds 731DS. £ 409.95

*This tubeset is exclusive to us. It has an octagonal butt profile in the main triangle tube, and considerably strengthened rear triangle.*

*Frame weight is approx. 4.75lb for an 18" frame.*

Team Diabolo in Columbus Max O.R. £ 489.95

*With 73mm bottom bracket shell.*

Made to measure any of the above, add. £ 65.00

### **Forks** *Purchased separately (Purchased with frame).*

Project II Double Butted, £ 69.95 (£ 49.95). Triple Butted, £ 89.95 (£ 69.95).

Tange Big Fork, £ 65.00. Custom curved / straight, £ 95.00

R / Shox 21, £ 325.00. Quadra, £ 199.00. Manitou II, £ 359.00.

### **Headsets**

We can fit any headset you require at favourable rates if purchased with a frame and forks. As prices are rather unpredictable at the moment, phone for current prices.

The standard "Cromor" frames are usually available from stock. All the others are to order and will normally be delivered in approx. 4 weeks from order. Some stock frames will normally be held in primer. If you want a different colour scheme we can accommodate a two colour fade in with the price. Any more than this will be as per our painting price list.

*This list is valid from 1 / 2 / 93 and supercedes all previous lists. All retail prices include V.A.T. and in line with our policy of constant specification review may be subject to revision without notice.*

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## **Dave Yates** Custom A.T.B. Frames

These frames cover the top end of the market. Aimed at the rider who's requirements are not met by the "Diabolo" range. Dave starts with a blank sheet of paper to design you a frame that incorporates all the detail you could possibly want. As each frame is different we can only give a guide to prices. Each price below allows us to incorporate as much individual detail as experience has shown is required.

The basic specification includes fillet brazed top three joints, cast bottom bracket shell, made to your specification, any colour scheme, any braze ons. (Headset not included). An oversize head tube, ie, 1 1/8 dia. steerer, can be incorporated at no extra cost if desired.

Richey Logic, Columbus Nivacrome, Dave Yates / Reynolds 731 Tange Prestige	Frame only	£ 595.00
Columbus Max O.R., Tange Prestige Concept.	Frame only	£ 635.00
Custom D.O.N.K.I.S. N.O.B. Columbus / Reynolds Mix.	Frame only	£ 675.00
Production D.O.N.K.I.S. N.O.B. Max O.R. in 16" - 16" - 20"	Frame only	£ 599.00
Vulcan "E Stay" frame in Columbus Max O.R. / Reynolds 531 Mix	Frame only	£ 699.00

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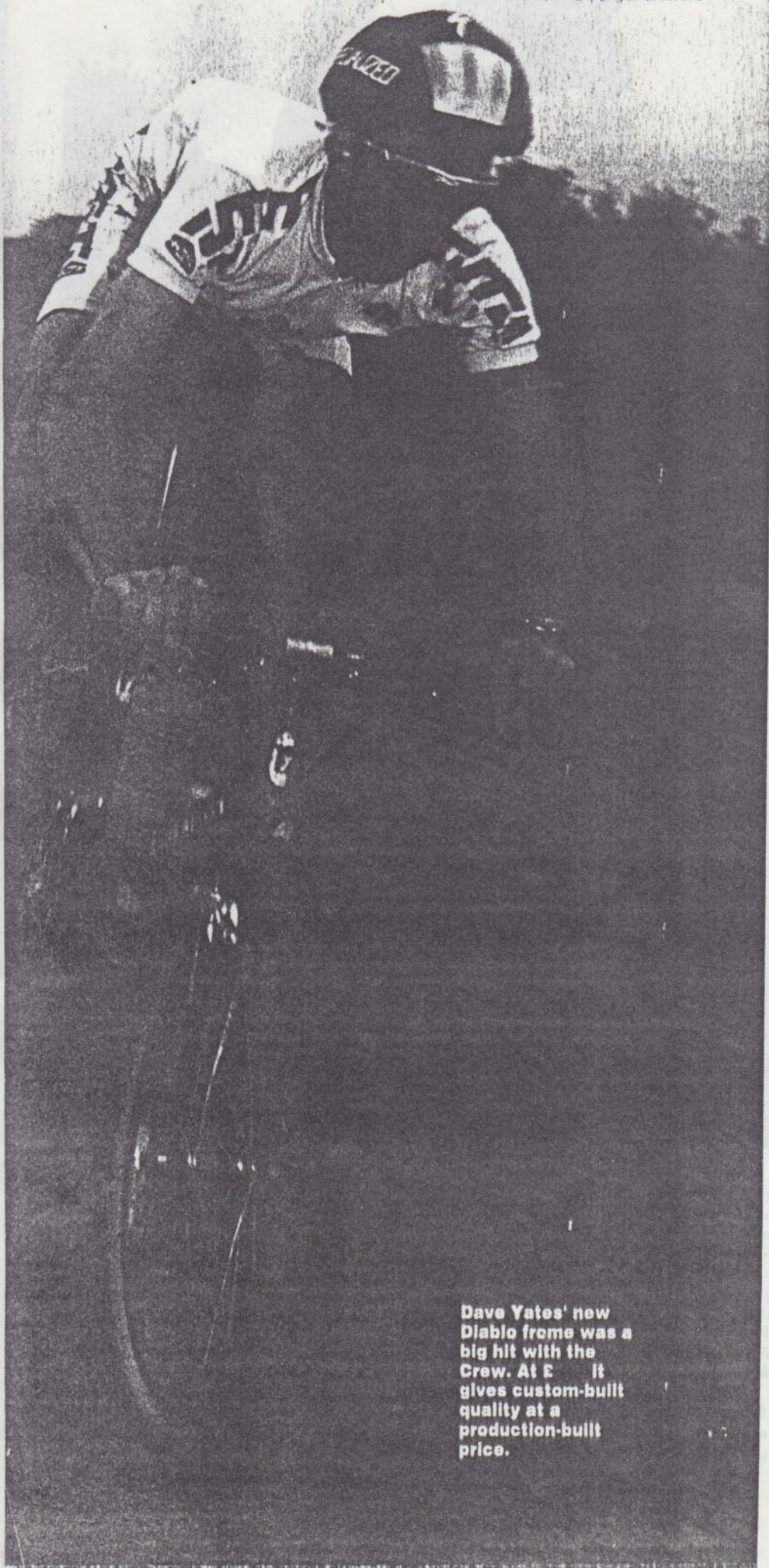
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PICTURES BY JIM MCROY  
AND STEVE BEHR



Dave Yates' new Diablo frame was a big hit with the Crew. At £ it gives custom-built quality at a production-built price.

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## *Steel's not dead!*

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*Despite advances in aluminium, carbon and titanium mountain bike tubing, builders who are dedicated to the pursuit of ferrous perfection have been working hard to prove that the traditional workhorse material can still cut it.*

*BRANT RICHARDS and the Crew checked out four variations on the steel theme.*

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It's a tough life in the MBUK Wrecking Crew. Being mobbed in the street by our groupies, having to get up early to ride expensive titanium, aluminium and carbon fibre bikes with all manner of springs, dampers and complicated widgets. We got together a few weeks ago, and found ourselves reminiscing on the days of old, when we rode regular chromoly bikes, without TIG-welding, oversize anything or nifty tubing profiles. Then it hit us how the steel bike has developed to counter the attack from the 'wonder materials'. Be it Columbus' super-nifty Max tubing, joint artistry in TIG-welding or fillet brazing, or just a nice paint job, steel bikes are still at the forefront of contemporary mountain bike design, despite what the marketing men behind some of the latest 'advances' might have you believe.

That's not to say that the 'new generation' materials don't have their place, they do, but steel still has a role in keeping us excited about mountain bike development.

We chose two examples from each side of the Atlantic, a Salsa A la Carte, a Serotta T-Max, Dave Yates' new Diablo and a Roberts White Spider. This isn't a strict comparative test, because the price range of the frames alone on these bikes is huge, it's more a look at the current state of steel bike design.

### **EASY WORK**

Steel is a great material to work with. Virtually anyone could learn how to join a bunch of mild steel tubes together to form a low-tech frameset. The skills required to join a set of chromoly tubes aren't that difficult to acquire either - it's certainly easier than TIG-welding aluminium or titanium. The technology to manipulate steel has been developing for many years because steel is easy to work with, and as a result manufacturers can form tubes with radical shapes, and varying wall thicknesses and diameters. Because of this, the tube sets available are far in advance of anything in aluminium or titanium in terms of making optimum use of the metal in the specific application of high-quality bike frames.

Titanium frames, for example, are built from straight gauge tubes. These certainly build into great framesets, but because the metal is so difficult to work with, it's going to cost megabucks to develop anything like a butted tube set in titanium. (In fairness to titanium, most builders reckon butting's not necessary anyway, because the strategic metal loses so little of its strength when you weld it.)

## NIFTY PIPEWORK

Mountain bike tube sets have come a long way from those used on the early production bikes. My first bike, a **Muddy Fox Seeker**, had thick-walled **Tange MTB** tubing brazed into heavy lugs. Loads of folks were using plain gauge tube because they weren't really that sure of the stresses that riders were placing their bikes under in normal use. As the tubing companies got a better handle on what people were doing with their bikes, how long they wanted them to last, how light they needed to be and how much they wanted to pay, they also got a better handle on how to design their tubes. Once they convinced riders you couldn't have a frameset that was cheap, super-

**Cromor OR – not the lightest tube set in the world, but it builds into a strong, efficient frameset, capable of taking quite a beating.**

lightweight and long-lasting, they could develop tubes to meet the real demands of real riders. **Columbus OR** and **Tange Prestige** were two of the earliest intelligently-designed tube sets.

The original version of **Prestige** was a lightweight, regular diameter tube set, used in one of the best racing mountain bikes of all time, the **Fisher Procaliber**. As regular users began to use **Prestige** because of its light weight, some found that it didn't stand up to certain types of dedicated thrashing. Some racers and hardcore riders found that **Prestige** frames twisted up after a couple of seasons of extreme use.

**Columbus** responded with their awesome but seldom seen **Max** tube set, and **Tange** released **Concept** and **Oversize**.

## TANGE PRESTIGE

It's the tube set that started the lightweight steel mountain bike revolution, and in its original form it featured regular sized tubes, with 0.9/0.6mm walls, and super-thin 0.8mm chainstays and seat-stays. It was in the rear triangle that **Prestige** saved most weight, as many produc-

tion tube sets used 1.5mm thick tube walls. The trend of using **Prestige** for the main triangle alone was pretty pointless as the main tubes weren't outrageously lighter than regular chromoly anyway. **Prestige** is now available in many different configurations, the only problem for British builders is that it's practically impossible to get hold of.

## COLUMBUS

**Columbus** tube sets are now the first choice of many UK framebuilders.

They have three types of tubing suitable for hand-building. First up is **Cromor OR**.

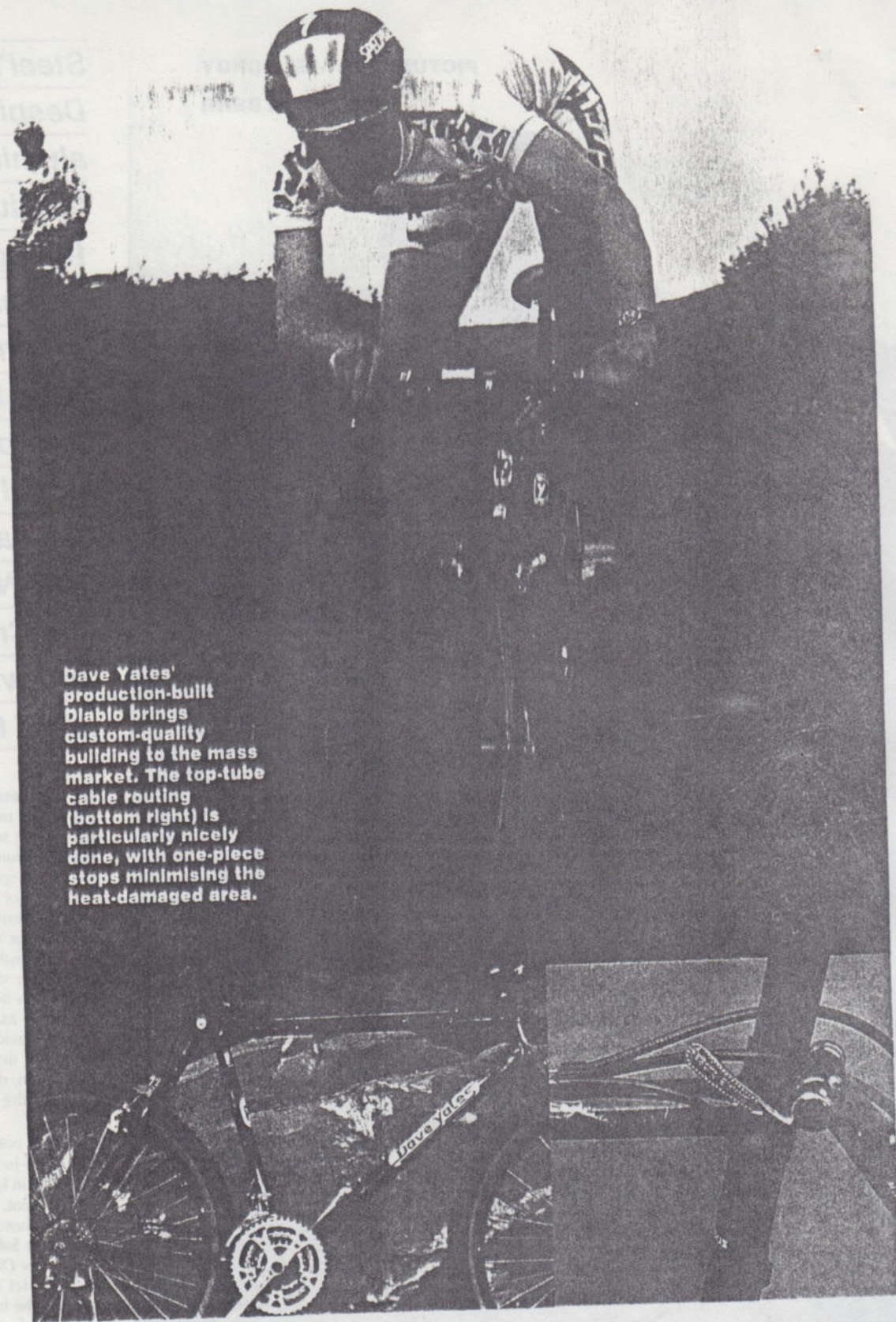
**Cromor OR** has regular tube diameters, with the 28.6mm top tube having a 0.9/0.6/0.9mm butting profile, the 31.7mm down tube having 1.15/0.85/1.15mm butting and the 28.6mm seat tube tapering from 0.7/1.0mm. The seat- and chainstays are both 1mm thick. The steel used for **Cromor OR** contains chromium and molybdenum and has a yield strength of 760 N/mm<sup>2</sup>, and a tensile

strength of 800N/mm<sup>2</sup>. The chromium gives the alloy excellent heat-resistant properties, which enables it to be TIG-welded or fillet brazed with little degradation of its strength.

It's not the lightest tube set in the world, but it builds into a strong, efficient frameset, capable of taking quite a beating.

## NIVACROM

Next up is **Nivacrom**, a high strength alloy available in three configurations; regular diameter, oversize and



Dave Yates' production-built **Diablo** brings custom-quality building to the mass market. The top-tube cable routing (bottom right) is particularly nicely done, with one-piece stops minimising the heat-damaged area.

Max. *Nivacrom* is a super-high strength steel alloy, the exact constituents of which are a closely guarded secret. Alloying elements such as vanadium and niobium give *Nivacrom* incredibly high strength and excellent resistance to damage by heat during building. With a tensile strength of 1200N/mm<sup>2</sup>, the steel is stronger than *Tange Prestige*, but is not heat-treated. This means that the super-thin tube walls can be TIG-welded. The regular *Niva OR* tube set boasts a strength and weight very similar to *Prestige*, with similar 0.9/0.6mm wall thicknesses in the main triangle.

The lightest *Columbus* off-road tube set is *Max OR*. The light weight comes from the super-thin tube walls that the *Nivacrom* alloy allows; the strength comes from the tube's huge size, a 37.7 by 25mm oval at each end, with a 0.8/0.5/0.8 butting profile for the top tube, and an even bigger 41.3 by 27.7mm oval with 0.9/0.6/0.9mm profile for the down tube. The huge chainstays are a 36 by 18.5mm at the bottom bracket, running with a 0.9/0.6mm butt to a 14mm circular profile at the tip. The seatstays are a reasonably conventional 16mm to 10.5mm taper, but with a thin 0.8mm wall.

Anyway, enough tube talk, let's take a look at the bikes.

#### DAVE YATES DIABLO

The perception of British frame-builders by the public is strange. Why is it that someone will buy a US production-built frame when they could have a UK-built custom frame for several hundred pounds less? Why do the public consider a *Fat Chance* to be a significantly better bike than a *Dave Yates*? (Because you keep raving about them! - Ed) Give Dave about £500 and he'll immaculately fillet braze a copy of a *Fat Chance* (or anything else) for you.

One problem with getting a frame custom built is the long wait. Dave's building road and mountain bike frames and is kept pretty busy. Currently his books are full for the next two months, so to enable more people to ride a high quality, UK-built frame with the *Dave Yates* name on, he's launched a production model, the *Diablo*.

#### WHAT'S IT GOT?

By rationalising his custom frames, seeing where he could save time, and hence money, Dave's been able to offer a well-specified handbuilt frame. Built from the *Columbus Cromor OR* tube set, the frame has three flawlessly fillet brazed joints, with a lugged bottom bracket to keep costs down a little.

Triple top-tube mounted investment cast cable guides, which again save building time, route the control cables. A brass roller that actually spins redirects the front mech wire, while the rear gear cable runs down the back of the seat-stay to a stop

perfectly located to give superb activation of the rear mech. A neat one-sided rear brake cable hanger that looks like a chess pawn graces the seatstay, giving a surprisingly solid feel to the rear brake. Running from Dave's favourite *Reynolds* rear dropouts, the *Columbus* single-tapered 16mm seatstays finish at an attractive fastback seat clamp. The down tube has one set of bottle bosses (an additional set is an optional extra for a small charge). The numbers are pretty conventional, with a 71 degree head angle, 73 deg seat, 12in bottom bracket height, 16.75in chainstays and a 22.6in top tube on our 20in test bike.

### With the new stem the *Diablo* felt like a different bike, and those sturdy wheels made it incredibly stable at high speed.

#### DEVILISH HANDLING

We destroyed the original *Kona Project II* forks doing huge ramp jumps (in the dark!) when we should have known better, but the frame survived unscathed. Dave will use the new *Project IIs* with 1.125in blades for all future models, but will stick with a 1in headset because the tools for oversize headsets still aren't available. Hand-building forks is a long, complicated business and the *Project IIs* are great lightweight forks.

Our bike came with a pair of the most bomb-proof wheels we've ever seen. *Mavic M7C13s*, with 36 13-gauge spokes; even if we totalled the frame, the wheels would have survived.

Shod with big, fat *Smokes*, we weren't too sure how well the *Diablo* would ride. The test scooter also had a 130mm high rise pipe stem, and first time out, those wheels and that stem made us think 'shopping bike'. It wagged like crazy on climbs, to such an extent that we dug in our spares box and fitted a 150mm *T-Bone* we had lying around. With the new stem, the *Diablo* felt like a different bike, and those sturdy wheels made it incredibly stable at high speed, the centrifugal force keeping everything on line, and in the air even the worst of us could get pretty radical.

With its contemporary geometry the *Diablo* handled everything well,

from single track to steep climbs. We felt the top tube could be stretched a little further, and mentioned this to Dave, who took our advice. New 20in *Diablos* will have a 23.25in top tube. He's keeping them in stock, in 16, 18 and 20in sizes, painted red or blue with a, er, 'blow-job' finish. Best of all is the price; only £295 for a handbuilt British frameset. If you haven't got a huge budget but dream of a high quality frameset, you know who to call.

Dave Yates is at M Steel, on 091-234-4275.

#### SEROTTA T-MAX

Apparently *Ben Serotta* has been making road frames for years. So? The *Wrecking Crew* don't give a fig-roll

about road racing heritage. We do care about how well a company's bike handles in the rough. *Serotta* only make one mountain bike, so they've got the most expensive bottom-of-the-range bike available! Billed from the start as a racing bike, the basis for the lightweight yet stiff frameset is a set of *Columbus Max OR* tubes, probably the most advanced steel pipework in the world.

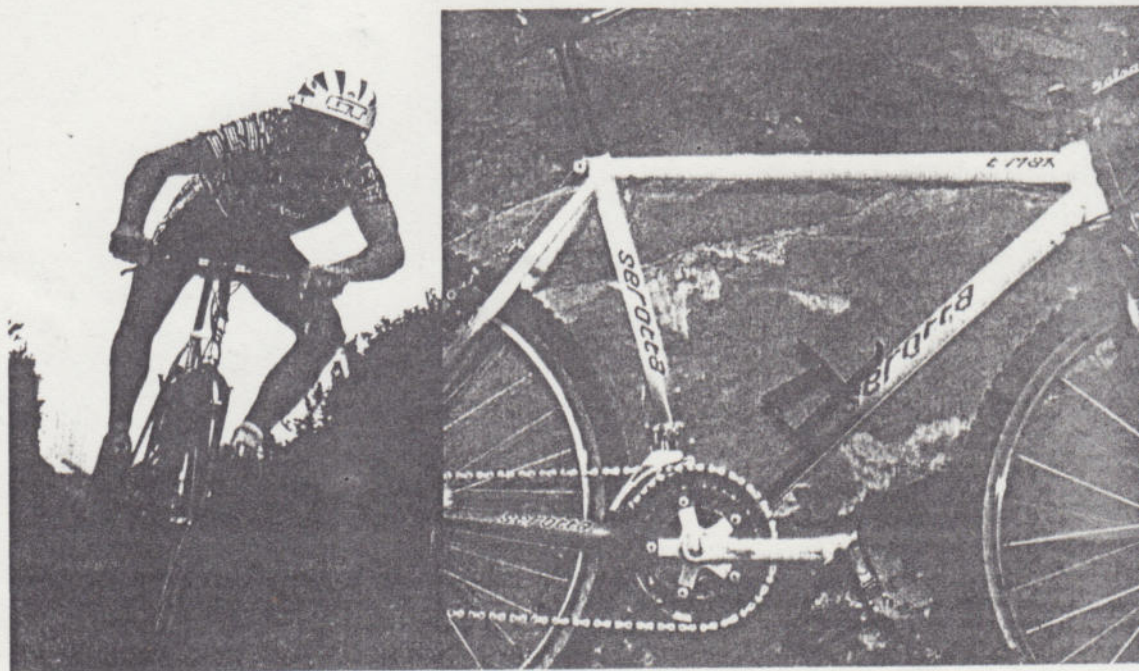
#### MAX OR WHAT?

Geometry is performance-orientated to say the least, with a 72 degree head angle, 73 degree seat, 16.73in chainstays, 1.7in fork rake, 11.75in bottom bracket height and a 23in top tube on our 19in test bike. Minimalist spec'ing for the braze ons shows this to be a serious hammerhead/racer's bike. No rack mounts, no mudguard eyes, not even a seat quick-release, and, given the huge chainstays, *Serotta* have also chosen to go without a chainstay bridge. The rear brake cable is guided on its way to the cantilevers by an incredibly small tube brazed onto the seat clamp.

#### DESIGNED TO A 'T'

With *Ben Huczek* from *Bag Marketing*, the bike's importers, in tow, we set out on a test ride to see how the *T-Max* handled on the *Wrecking Crew's* favourite terrain. Ten minutes out, *Zak* crash-tested the *Serotta* when he slam-dunked a ditch and face planted a bank at about 30mph, breaking his *Mumbos* and, we subsequently discovered, one of his ribs. The *T-Max* was fine. Any doubts we had about whether this bike would stand up to serious abuse were laid to rest.

Did we mention the *T-Max's* most interesting feature? It weighs a



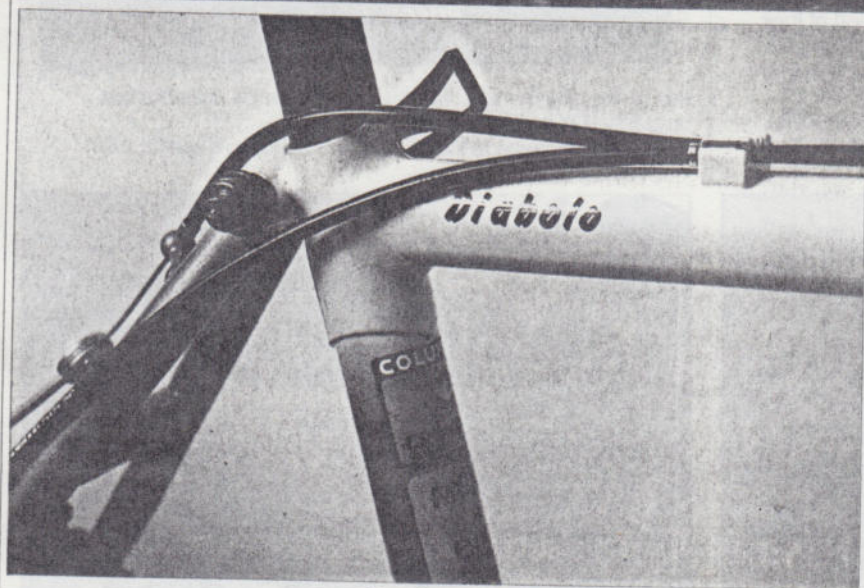
It's rare for a steel bike to impress us to the point where we're really reluctant to return it, but parting with the rigid, responsive *Serotta* was a painful process. This 24.5lb creation is one of the best pure racing mountain bikes we've ever ridden.

BIKE TEST

# DAVE YATES DIABOLO

Take a handbuilt frame from one of Britain's best known frame builders, then add a well planned component package to get a bike that rides like the devil.

Photography by Geoff Waugh



Every frame is hand made, usually in batches of eight to ten, by Dave at M Steel's frame shop in the North East.

**T**he Dave Yates Diabolo comes as a frameset only. At £280, it lends itself very well to shops on the lookout for a quality frame to build up to customers' specifications while keeping the price within the bounds of reason. Simply draw up a spec sheet and bolt on whatever components your heart desires or your bank balance allows.

Fit up a Diabolo with a selection of trick bits from Ritchey, X-Lite, Rhino and Mavic as we did, and it has the feel of a custom mountain bike, but the price tag of an 'off the peg' machine.

### The Frame

Acknowledged as one of the best frame builders in Britain, Dave has been making MTBs since 1983. Partly because of its low cost, the Diabolo is one of his most popular models and so far he has built around 200 of them. Every frame is hand made, usually in batches of eight to ten, by Dave at M Steel's frame shop in the North East.

Standard models come in three sizes - 16, 18 and 20 inches - and a two colour fade finish. For an extra £59, you can get one custom made to your own specifications and sprayed up in the colour of your choice.

The frame is made of fillet brazed Columbus Cromor OR tubing, very durable though definitely not the lightest tubing around. Dave also makes bikes from a selection of other tubesets, including Columbus Max OR and a special Reynolds tubeset called 731 that is specifically drawn for him. A typical 731 frame would cost around £429.

Columbus Cromor is a race oriented tubeset, based on the Italian company's own Nivacrom steel but with extra material around the butts. The additional butting makes a stronger frame by reinforcing areas where strength is most needed - around the head tube, bottom bracket and seat cluster.

All cables are routed along the top tube, though instead of a top pull front mech the front cable runs to a standard mech via a brass pulley two inches above the bottom bracket. This arrangement is a bit unnecessary and doesn't improve shifting, but it would be possible to ignore the pulley and run a top pull mech instead.

The frame also comes with

two water bottle bosses and, as a nod to anyone in search of versatility, a set of mudguard eyes.

### The Forks

On a frame like this, you can have any forks you want. Mend-a-Bike, who specced this bike and distribute Dave Yates bikes in the South East, plugged in a pair of Joe Murray's triple butted Project Two forks. Triple butting means the tubing used in the forks' manufacture has three steps - thicker at the top, thinner at the bottom. This saves weight and puts strength where it is needed: at the top, near the crown.

The current version also features slimmed down dropouts - the bit that holds the wheel. The new style dropouts are lighter than before without any compromise in strength, so they won't fall apart on the first gnarly downhill. Another factor in the choice of Project Twos was price. A pair only adds £40 to the £280 frame price. The way these straight bladed black forks complemented the black seat pin and black finish on the LX groupset was an incidental bonus.

### The Groupset

The components selected were a mixture drawn from Shimano's new LX and Deore DX groupsets. We are going to see more mixing and matching next year, as the custom look has been picked up by a lot of builders and bike companies.

The new LX group has been so well received that many companies - Specialized, for example - have specced bits from it at the top end of their range, selectively upgrading other parts, such as front and rear mechs, for enhanced performance and durability.

The Diabolo was built with



### Frame

Columbus Cromor Off Road

### Fork

Joe Murray Project Twos

### Colours

Blue/Pink/White fade

### Braze-Ons

Two bottle cages

### Groupset

#### Shifters

Shimano STI Rapid Fire Plus

#### Cranks

Shimano LX 175mm

#### Bottom Bracket

Shimano Sealed cartridge bearings

#### Pedals

Steel Bear traps

#### Chain

Shimano UG

#### Freewheel

Shimano cassette 7 speed 12-28T

#### Chain Rings

Shimano LX 46/36/26

#### Derailleurs

Shimano DX

#### Brakes

Shimano LX

### Components

#### Headset

Japanese steel model, Zoom hanger

#### Stem

Steel silver 135mm

#### Bars

Steel silver

#### Grips

Ritchey True Grips

#### Saddle

Turbo

#### Seat Post

Kalloy UNO

#### Tyres

Ritchey Z-Max Black wall

### Wheels

#### Rims

Mavic 231CD

#### Hubs

Shimano LX

#### Spokes

Swiss DT Double Butted

Stainless

Purple alloy nipples

#### Extras

X-Lite bar ends

**Price:** £745

**Supplier:** Dave Yates - 091-234 4275

DAVE YATES - TECHNICAL

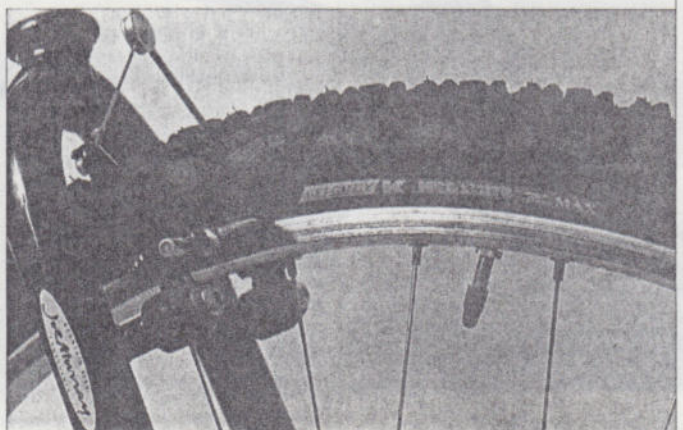
this philosophy in mind. The upgraded DX mechs provide similar performance to the

cheaper LX ones but last longer.

Shimano's latest LX STI



We are going to see more mixing and matching next year, as the custom look has been picked up by a lot of builders and bike companies.



Dave Yates bikes in the South East, plugged in a pair of Joe Murray's triple butted Project Two forks. Triple butting means the tubing used in the forks' manufacture has three steps - thicker at the top, thinner at the bottom



## BIKE TEST - DAVE YATES

Rapid Fire Plus levers were fitted. There have been big changes in this department. The increased performance and fingertip control is very good. Shifting used to be a case of waving your thumb around above the bars until it connected with the thumbshifter. Now your fingers are over them constantly, which results in quicker shifts and less crunching of gears.

Also, Shimano have improved the LX brakes. The new M-System brakes now work better in the wet, partly due to a new block compound. The brakes are easier to set up as well. Gone is the old guide wire between the two cantilevers arms, in is a tube that sets cable length and adjusts the angle to 90 degrees - supposedly the best angle for efficient and progressive braking.

A sealed bottom bracket and new, better quality LX hubs finish off this well rounded package.

### The Components Bars/Stem

A Rhino stem and bars were fitted to the Diabolo. The cromoly stem has a neat hidden Allen key clamping bolt, which sits under the stem back from the clamp and works very well.

The cromoly bars are not the lightest around but they are stiff and strong. This bar and stem combo can be bought separately from Mend-A-Bike for around £25, great value for money.

### Saddle/Seatpin

A Turbo saddle squatted on top of the Kalloy Uno seatpin. Turbos have been around for as long as we've been riding. Though not as light as the new titanium railed crotch splitters seen on some bikes, they are comfortable, durable and popular. The seatpin has a one key adjustment. The column itself has a hard black finish that seems durable, and the cluster (the top bit) is painted gloss black and looks cool too.

### Extras

X-Lite stubbies were fitted to the steel bars. In case you didn't know, bars ends provide more climbing positions and let you stretch out when your arms are aching. They also open your chest for better oxygen uptake - important whether you're racing or just out riding. The X-Lites are some of the lightest on the market and look good in anodised purple. They're also British made.

### Tyres

Ritchey Z-Max tyres wrap the wheels; rubber that's rising fast in the popularity stakes due to its light weight and awesome tread pattern. The black walled version is a tad heavier than the standard model but is still lighter than most of the competition.

The tread pattern is designed by Vector Force Analysis. This sounds complicated but all it actually means is that a computer has analysed the directional forces at work on a tyre and come up with a tread pattern based on the info.

The Z-Max knobs are arranged to provide maximum grip in all but the most extreme of conditions. On dusty single track the tyres were very good, and they hooked up pretty well on steep climbs and loose stuff. Cornering, they floated smoothly and never bit so hard that the front wheel washed out. Clogging wasn't too much of a problem either as the tyres cleared quickly, squeezing most of the mud out of the sides. A new thinner 1.9 version Z-Max is now available, look out for a test in *Tricknology* next month.

### Wheel Deal

Mavic 231CD rims were built onto LX hubs using DT's stainless steel double butted spokes and alloy nipples. Nice to see a pair of handbuilt wheels on a bike at this price, apart from adding class they really improve performance. A well built, evenly tensioned pair are less likely to go out of true and should last longer than a set of machine built wheels.

Mavic 231CDs have a good reputation for durability and long life. Certainly, the plain grey finish looks good and doesn't scuff up or scratch like anodised rims. Although they are thicker and slightly heavier than, for example, Araya RM17s, another plus point in favour of 231CDs is that they are eyeletted, so the spokes slot into a reinforced steel plug rather than directly into the rim itself. This means spokes are less likely to stretch or, worse, pull through the weaker rim material.

### The Ride

One of our test riders said this was one of the best bikes in its price range he'd ever ridden. We pretty much agreed with him. The Diabolo is a really exceptional frame, and was well complemented by Mend-A-Bike's choice of components.



The whole package not only looked good, it felt good too.

The bike was easy to move around on tight trails and roller coaster single track. Climbing really steep stuff was less strenuous than usual. The bike felt a lot shorter at the back than the 16.75ins stays suggested.

Downhilling the bike took off. Unweighting the frame to clear ruts and rocks in the trail was simple and required little effort. The bike floated round corners, the Z-Max tyres digging in and holding their line with ease. The wheels felt stiff and responsive and accelerated quickly with the minimum of sideways flex. The forks enhanced the positive feel and immediacy of the steering.

On our 18ins test bike, the 23ins top tube was spot on (23.1/4ins on a 20ins frame and 22.3/4ins on the 16ins frame). It felt long enough to move around comfortably, necessary on steep climbs where traction is at a minimum, and short enough to be lively and responsive on single track.

The short 135mm stem proved ideal, it meant the handling was quick but secure. A longer stem would have made it slow and ponderous, while a shorter stem would also flex more, sapping valuable rider energy.

The Diabolo did all the things we wanted but had a freshness and life that you rarely meet on other bikes in this price range.

### So What Are We Saying ?

The forks are light, the wheels are light, the tyres are light, the groupset is light and so is the

price. At under £750, the Diabolo is a really good value for money race bike, decked out in this package with some of the best components around. The only things missing are suspension and possibly SPDs but you can add those later.

We were very impressed with the quality of both the build and the ride. We also liked the overall versatility of the bike. The colour was one thing we would change if we bought one. But as Dave Yates says, 'You can have what you want, even a hand painted custom job but you have to pay for it.'

'This bike is aimed at the sort of rider who has gradually climbed up the ladder,' Dave explained to us. 'He's bought a cheap entry level bike first, then a more expensive budget racer and now he wants a custom job but can't afford the £1000 price tag.' This bike appeals to a much wider audience than this and, of course, Dave can tailor a frame to an individual rider's needs. He can shorten it for town riding or lengthen it for tall riders. Phone him for a chat.

The thing we most liked about the Diabolo was it's 'Made in Britain' tag. With people looking abroad for custom frames, this is a custom bike that has everything and won't have to be smuggled back through customs.

Thanks a lot to the people at Mend-A-Bike (Cyclesport) who put this bike together and who distribute Dave Yates frames in the South East. Contact them on 071-371 5867



# DAVE YATES DONKIS NOB



**D**ave Yates' answer to the recent rash of bikes with silly names from British builders is the DONKIS NOB, an all-purpose high performance bike that is intended for racing and fast recreational mountain biking but, unlike some super-light race bikes, is also intended to last for more than a couple of seasons.

For the record, and without further comment, the name stands for Dave's Oversize No Kompromise Interactive System, Never Obviously Beaten.

## The tubes

Dave has fillet-brazed a mix and match tubeset that makes for a stiff, tough frame: the down tube, seat tube and chainstays are **Columbus Max OR**; the top tube is road **OR** and the seatstays are **Reynolds 753**. This

## JOHN STEVENSON rides the newest British custom. Pics by PETER LORETZ/STUDIO 2

mix is not superlight – the bare frame tips the scales at a touch under 5lb – but it makes for a frame that feels super-sturdy and goes where you point it, with none of the front end vagueness that afflicts some very light steel frames and results from flexible down and top tubes letting the wheels wander out of alignment.

The head tube on our bike was an experimental composite assembly, consisting of oversize ends attached to a standard, road bike sized centre as a weight saving device. Dave says that, while there's just enough room for a 1.125in steerer in this set-up, it won't see production

because it's hard to get the headset cups out of the frame.

Down below, Dave uses a 73mm wide bottom bracket shell. Combined with the narrow, tall **Max OR** stays this gives lots of mud clearance, even with the super-short 15.75in rear end.

Beyond the necessities for cantis and top-routed cables our bike was virtually devoid of braze-ons, though since this is a custom machine you could have anything you wanted. The roller for the front mech, mounted on the back of the seat tube, turned out to be a bit of a mud trap, and we wonder if it wouldn't be better on the side of the tube.

Since this is a custom job

you can have any paint scheme you like, including the 10 colour fade here. Painting the **Rock Shox** to match adds about \$40 to the price.

## The numbers

That 15.75in chainstay length is a pretty radical dimension, as is the long 23.5in top tube. The rest of the numbers are more conservative: 73 degree seat angle, 70 degree head and 11.5in bottom bracket height.

To attain that conventional bracket height with the **Rock Shox Mag 20** fork, Dave has effectively raised the bottom of the head tube 20mm but left the rest of the geometry alone. He says later bikes will probably go to an 11.75in or 11.9in bracket height to gain a little more ground clearance, essential on a suspension bike since you often find yourself pedalling over ground where you'd previously have coasted.

The 70 degree head angle is also a suspension-affected choice. As you brake on a suspended bike, the front end dives and the head steepens up. To stop this resulting in a silly head angle, Dave has deliberately chosen a slacker start point, so that the bike will still handle well as you brake into corners.

## The bits

Our bike, which is actually Dave's personal bike, was built up with a full 1993 **XTR** group, identical to the 1992 set-up except for the addition of pick-up teeth on the big ring. While it worked as well as ever, we noticed two problems, one inherent to **XTR**, the other a result of the frame. Firstly, the **XTR** brakes are nowhere near as good as, say, the new **LX** units since **Shimano** haven't yet upgraded them to **M System** standard. A switch to **M System** blocks and cables, when they

become available, should improve matters, and the brakes did improve as the anodising on the rims wore off. Secondly, the acute chain line required for XTR's eight-speed block just isn't compatible with 15.75in stays. We found the chain tended to spontaneously drop from the middle to the inner ring when it was on the largest rear sprocket. An XT-based system with a seven-speed cluster would work better.

We won't dwell too much on the rest of the spec, since this is a custom bike and you can choose whatever you like to go on it; take a look at the spec list for Dave's personal preferences in equipment.

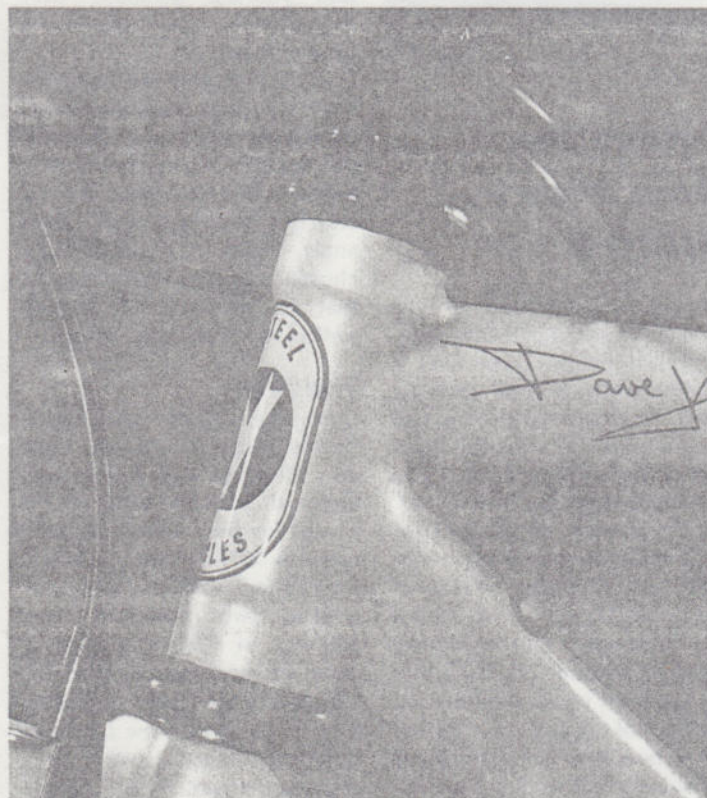
### The ride

The word that sums up the DN is solid. The stiff front triangle and massive, short chainstays make for a frame that provides a firm platform for all-out efforts, without losing the slight resilience that characterises steel frames. Handling is neutral, not too quick, not too slow, and the bike goes where you point it at both low and high speeds without any fuss.

The short rear end doesn't affect the handling in the way most people expect. "Isn't it choppy?" they ask. No actually,

it isn't. The twitchy downhill that people seem to expect from short-stay bikes isn't there, partly because the long front end helps stabilise the handling. However, the vertically stiff chainstays do make for a bike that is less comfortable in the back than a similar design made from lighter tubes - I own a similar bike with a **Tange Prestige** rear end, which has a much 'softer' feel. The *Max* stays are necessary to get decent mud clearance, though, and we can't complain about that. Of course the big advantage of such short stays is that the bike climbs better and the rear end is amazingly easy to flick around.

Once we'd got them dialled in, the **Rock Shox** fork was, well, a **Rock Shox**. The *Mag 20* is still one of the best suspension forks around, even though it is being superseded by the *Mag 21*. If you need a light fork that absorbs big hits well, look no further. We did notice that the fork doesn't track as accurately as, say, a **Manitou** or **Pace** fork. Although the *Mag 20* is claimed to be torsionally rigid, and it is a lot better than many forks, it actually feels less precise to us than the larger stanchioned elastomer forks. (Full low-down on *Mag 21s* and all the other new forks in the next issue.) ☺



Yates is a master of beautifully crafted fillet-brazing. The unusual light weight head tube design on our bike won't see production, though.

DAVE YATES DONKIS NOB Dave Yates MTBs ☎ 091-234 4275	
Frame material	Columbus Max OR/Max/Reynolds 753
Forks	Rock Shox Mag 20
Headset	Dia Compe Aheadset
Crankset	Shimano XTR
Derailleurs	Shimano XTR
Shift levers	Shimano XTR
Freewheel	Shimano XTR, 12-30
Chain	Shimano XTR
Pedals	Shimano Deore XT
Bottom bracket	Shimano XTR
Hubs	Shimano XTR
Rims	Mavic 231CD
Spokes	Stainless
Tyres	onZa racing Porcs
Brakes	Shimano XTR
Brake levers	Shimano XTR
Handlebars	3ttt Extreme, Lynx ends
Grips	Trek
Stem	Dia Compe Aheadset
Saddle	Velo titanium
Seatpost	Shimano Deore XT
Weight	26.18lb
GEOMETRY	70°
Head angle	73°
Seat angle	23.5in
Top tube length	41.25in
Wheelbase	15.75in
Rear end	11.5in
Prices	Bare frame - £675; frame with Rock Shox and Aheadset system - £1,035; complete bikes from £1,400; as tested - £2,195

## The MBUK verdict

**A**longside bikes like the Dave Lloyd **CATS WISKAS** and the Chas Roberts **DOGS BOLX**, which started all this silly acronym stuff, the **DONKIS NOB** proves that British builders can build mountain bikes that are as good if not better than the best American efforts, and often considerably cheaper. The **DONKIS NOB** is a beautifully built hammertime bike, that's as suitable for going out and having fun on the moors

and playing in the woods as for racing at any level. And while it's not superlight, it should last for ever, disasters notwithstanding. We'd tend to stick with a 7-speed gear system to keep the transmission working sweetly, or choose longer stays to get an 8-speed compatible frame with enormous mud clearances. That's the beauty of buying British and custom, you can have virtually anything you want.

# M. STEEL

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### Frame looking tatty?

Why not take advantage of our renovation service to make it look better than new.

Your frame will be shot blasted to remove all the old paint back to bare metal. A coat of rust inhibiting etch primer is followed by two top coats, baked hard in our electric oven. Maker's Transfers can be fitted, if required, at this stage. The job is completed with a coat of clear lacquer, baked again to give a brilliant gloss which is hard and long lasting.

We carry out almost any repair, including stripped bottom brackets. All repairs are carried out with Reynolds 531 tube to the same exacting standards as our new frames. Whatever your requirement, if it's a practical proposition we will do it!



# M. STEEL

## FRAME RENOVATION ORDER

NAME ..... TEL NO. ....  
 ADDRESS .....

DATE RECEIVED ..... DATE PROMISED .....  
 MAKE OF FRAME ..... FRAME NUMBER .....  
 REPAIRS .....

.....  
 .....  
 .....  
 MAIN COLOUR .....  
 LUGS LINED .....  
 CONTRASTS .....

TRANSFERS: D/T .....  
 S/T .....  
 H/B .....  
 METAL HEAD BADGE .....  
 CHROME .....  
 .....  
 REMOVE AND REFIT FITTINGS .....  
 SUNDRIES .....

CARRIAGE .....  
 ESTIMATED COST .....  
 CUSTOMERS SIGNATURE ..... DATE .....  
 CHECKED BY: ..... INVOICE NO. .... DATE .....

	£
	p

# COLOUR CHART

1	Flourescent pink	58	Verde
2	Pink Champagne	65	Sky Blue
3	Poppy	66	Polychromatic Green
4	Rosso	69	Flamboyant Midnight
5	Flamboyant Red	73	Pearl Sky Blue
7	Flamboyant Ruby	74	Dura Ace Blue
10	Post Office Red	77	Viola Chiaro
11	Flourescent Red	79	Polychromatic Silver
14	Pearl Pink	80	Grigio
17	Black	81	Anthracite
23	Bubblegum Pink	83	Sparkling Silver
27	Golden Yellow	85	Viola
28	Sunflower Yellow	86	Blue Viola
30	Flamboyant Bright Green	87	Champagne Poly
33	Flamboyant Emerald	91	Pearl White
34	Purple	92	Pearl Fluoresc. Pink
35	British Racing Green	93	Bright Red
38	Pearl Yellow	94	Blue Cobalto
47	Verde Chiaro	95	Pearl Fluoro. Red
48	Pearl Blue	96	Flamboyant Magenta
49	Regatta Blue	97	Black Metallic
52	Blue Intenso	98	Blue Azzuro
53	Aircraft Blue	99	Flourescent Yellow
54	Flamboyant Royal Blue	100	White
56	Flamboyant Light Blue	101	Titanium

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\*\*\*\*\*

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- 1) FIT A SPACER BETWEEN THE REAR DROPOUTS - AN OLD BLOCK OF WOOD WILL SUFFICE.
- 2) IF YOU HAVE REMOVED THE FORKS, TAPE THEM TO THE SEAT STAYS ENSURING THAT THE FORKS DROPOUTS ARE WITHIN THE STAYS FOR PROTECTION.
- 3) ATTACH SPECIFIC INSTRUCTIONS TO YOUR FRAME OF WHAT YOU WISH US TO DO. A RENOVATION ORDER FORM IS ENCLOSED IN OUR BROCHURE.
- 4) SECURELY BOX THE FRAME WITH PLENTY PACKAGING ENSURING THAT THE BOX IS WITHIN 3 METRES LENGTH AND GIRTH COMBINED.
- 5) ATTACH OUR PREPAID LABEL TO THE BOX PLUS YOUR OWN NAME AND ADDRESS CLEARLY MARKED AS SENDER.
- 6) DROP THE PARCEL OFF AT YOUR LOCAL POST OFFICE.

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## RESPRAYS

	ENAMBL	MBT/FLAM	PEARL	PLD.
Frame and forks	36.50	42.20	44.50	48.30
Frame only	32.00	35.50	36.50	39.50
Forks only	10.20	11.90	13.70	15.80
Tandem and forks	74.00	84.00	95.50	106.70
Trike and forks	61.90	69.50	72.50	77.60

## CONTRASTS

Seat/top/down tube single panels	8.40
Seat tube multiple bands	11.50
Head tube	9.30
All seat tube	9.80
Rear triangle and forks	20.20
Shaded panels (1st colour change) from	14.90
Shaded panels (each subsequent colour)	7.50
Smoking	14.90
Spatter, Mottle, Blown, Colnago lattice	18.50
Match non standard colour	11.30

## FINISHING SUNDRIES

Lug lining	from 9.30
Fit transfers, (transfers charged as per list)	4.20
Remove and refit head badge or plastic gear tunnel	2.50
Name on top tube (per side)	4.80
Supply and fit company transfers (our frames only)	9.50
Fill surface pitting with filler, & rub down (from)	16.10

## BRAZE ONS

Pump pegs	4.00
Stops or guides	4.00
3 top tube guides	12.00
Concealed brake cable	25.00
Solid allen key seat bolt	11.40
Lever bosses (each)	5.80
Bottle bosses (inc. stainless allen bolts)	7.80
Campag gear tunnels (each)	5.00
Plain under bracket tunnels	5.00
Centre pull bridge (inc. adjuster)	9.50
Cantilever brake pivots (per brake)	9.80
Gear hanger	10.90
Pannier bosses (per fixing point)	4.00
Chain hanger	4.00
Lamp boss (inc. bolt)	6.10
Mudguard eyes (each)	4.00
Fill dent in tube where poss.	from 4.00
Braze on front changer boss	9.80
Remove brazing and clean up tube	3.00
Single bottle boss as fixing point	3.90
Tread drive dynamo plate	10.00
Dynamo cable guide rings (each)	2.00
Tandem brake anchor	10.00
ATB triple cable stops	6.00
Front mech. roller	9.80

## FRAME REPAIRS

Cut and weld bottom bracket (frame stripped)	18.00
New bottom bracket shell	54.40
New top tube	35.00
New down tube	35.00
New seat tube	45.00
New head tube	30.00
New head tube and lugs	45.00
New front end	85.00
New pair seat stays inc. brake bridge	46.00
New single seat stay	29.00
New pair chainstays	52.00
New single chainstay	29.00
New pair rear dropouts	45.00
New single rear dropout	30.00
New rear triangle	95.00
New brake bridge	10.00
New brake bridge with diamonds	12.00
New bottom bridge	7.50
Check over alignment and report	P.O.C
Straighten frame - only where poss.	from 15.00
Drill out rear adjusters (each)	5.00
Drill out for allen key brakes	7.50
Fill metal head badge holes	4.00

## NEW FORKS (including painting)

New 531 ST forks	57.00
New 531 C forks	70.00
Investment cast fork crown	13.31

## FORK REPAIRS

New steering column	24.00
New pair dropouts	22.00
New single dropout	14.00
New pair 531 ST blades	45.00
New pair 531 C blades	54.00
New single 531 ST blade	35.00
New single 531 C blade	39.00
Straighten and retrack forks	from 8.00

## SUNDRIES

Remove, clean, and refit b/b or h/set	from 12.00
Remove corroded stem or s/pin	from 9.00
Supply and fit new allen key seat bolt	2.50
Supply and fit new rear adjusters	3.00
Fit new h/s, or b/b	6.00
Strip and reassemble cycle	from 45.00
Remove fixed cup and headset races	from 3.00

PRICES ARE RETAIL INCLUDING VAT AT THE CURRENT RATE

THESE PRICES ARE CORRECT AS AT 1.1.93. BECAUSE OF OUR COMPANY POLICY TO CONTINUALLY UPDATE SPECIFICATIONS PRICES MAY CHANGE WITHOUT PRIOR NOTICE









## Standard Frame Design Data

### Prima Frames

Size	T / tube	H / angle	S / angle
51	54	73	74
54	55	73	73
57	56	73	73
59	57	73	73
62	58	73	72

### Randonnee Frames

Size	T / tube	H / angle	S / angle
51	55	73	74
54	56	73	73
57	57	73	73
59	58	73	73
62	59	73	72

### Touring Frames

Size	T / tube	H / angle	S / angle
51	55	72	74
54	56	72	73
57	57	72	72
59	58	72	72
62	59	72	72

### Diabolo Frames

Size	T / tube	H / angle	S / angle
16	22 <sup>3</sup> / <sub>4</sub>	71	73
18	23	71	73
20	23 <sup>1</sup> / <sub>4</sub>	71	73