# Time MACHINES

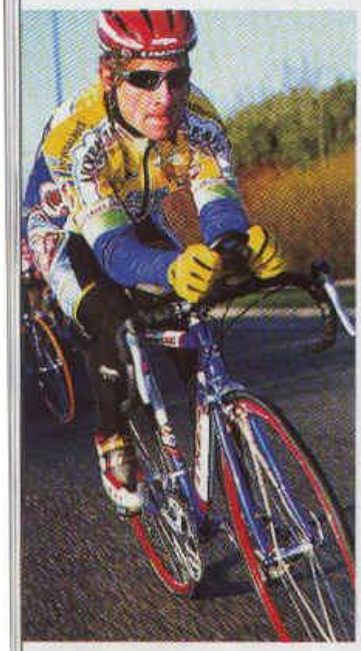
## You don't need to spend a fortune to start time trialling. **Richard Grigsby** tests three entry level TT bikes that that'll leave you change for some tri bars

If you're looking to upgrade your existing TT bike, or get into time trialling, you can get a lot more for your money than ever before. And with the current popularity of aluminium frames, you needn't limit yourself to steel. But if you do choose a custom steel frame – and these start at surprisingly reasonable prices – you can get exactly what you want. In this test we pitch two off-the-peg aluminium framed racers against a hand-built steel frame built up to a sub £700 budget.

Alternatively, you can buy a frame and new set of wheels and build up the bike with whatever suitable kit you have already got. This can be done even more cheaply with parts you own and it'll be just as effective.

All three test bikes are deliberately undersize to allow a lower position for time trialling. The Trek 1000, at £529.99, is the most reasonably priced bike although this does not include tribars or aero bottle mounts – those supplied with the bike by Trek for this test would add another £50 to the price. The Dawes Giro 400 also came without tribars and at £599.99 was priced in the middle ▶

PHOTOGRAPHY ROBERT SMITH STUDIO



of our trio. Both the Trek and the Dawes would need another £75 or so spent on them to buy faster tyres and a close-ratio cassette before they could be raced (we tested with tri bars but without changing the original cassette). The Yates was also priced without tribars but would need no other upgrades.

When choosing a time trial bike as with any other bike – frame size is crucial. The frame has to have the right reach for tri-bar use and be low enough at the front end for you to achieve an aerodynamic position. This will usually involve buying a frame that is two to three (cm) sizes smaller than your typical road riding bike. Standover height should therefore be more than adequate. This bike won't readily double as an all-day leisure machine so don't be tempted to compromise your time trial position.

As a rule of thumb, small frames (52 to 54cm seat tube) will have a longer top tube than their seat tube – keeping your feet out of the front wheel! Medium sized frames (55 to 59cm) will be square i.e. their top tubes will roughly match their seat tubes. Large frames (60 to 64cm) have correspondingly shorter top tubes than seat tubes in order to keep control of the wheel base.

It is possible to buy a frame only from Dave Yates and Dawes offer its Giro frames as a 'Custom Select' option from their website. But a custom builder will allow you to specify an exact top tube length, for instance.

## FRAME
**Trek 7 Dave Yates 8 Dawes 8**

There's an instant wow factor with Trek's 'in your face' US Postal Service graphics. Underneath the larger than life decals is a light aluminium frame that is TIG welded to the highest standards. Save for a minute amount of pin-holing at the top of the seat stays the paintwork is superb.

Geometry is pretty standard with a reasonably laid-back seat tube giving a relatively longer top tube for this smaller than average frame. Frame material is Trek's Alpha Custom Aluminium which, from the weight, I presume is a light but durable 6000 series, and a cromo fork. Both the fork and down tube are deep-section which, in the latter case, enhances the frame's stiffness due to the massive weld contact areas. As can be expected from such a large company, the alignment was perfect.

The Trek is not super-lightweight thanks to the steel fork and chunky tubing – and a lifetime guarantee reflects the fact that the frame is built for longevity. A non-replaceable rear dropout is cause for concern should the bike get laid down on the right. For budding Century riders there are rack eyes and even a rear mudguard mounting on the chainstay bridge for those foolish enough to risk squeezing 'guards under the short-reach calliper brakes. There is no mudguard eye on the fork leading me to believe that the bike is designed for a rear rack only.

## DAWES GIRO 400 £599 complete, frame and forks custom select from website only

Left: Ritchey bars and stem are a nice touch

Far left: Long and strong seatpin suited our test perfectly

**'carbon forks... a real bonus at this price'**

**At a glance:**

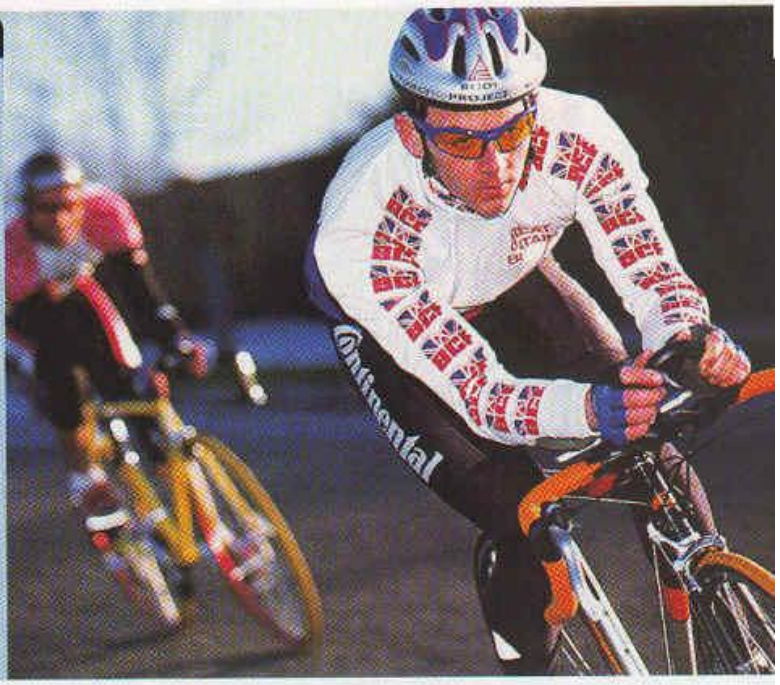
| | |
|---|---|
| FRAME | 8 |
| HANDLING | 9 |
| WHEELS | 6 |
| EQUIPMENT | 7 |
| OVERALL | 8 |

## Cranks and Q-factors

In the search for extra power some time triallists are tempted tempted to fit oversize cranks. Our advice is – don't. Knee strain and inflexible pedalling styles develop from trying to push big gears with long cranks. A good rule of thumb is 20% of your actual inside leg i.e. if you have a 32in inside leg then you should be riding 32x0.2=6.4in or 163mm cranks. Round this up to 165mm and Shimano can offer you a set of 105 cranks and 53/39 chainrings for £75, plus £35 for the dedicated splined bottom bracket. Alternatively, you could go up to 170mm cranks which are the norm for male adults. A set of Stronglight road cranks will cost £45.

If you have an inseam (crotch to floor with no shoes on) of less than 30in then you may have to get some existing solid-arm cranks shortened (try George Longstaff ☎ 01782 561966 or Chris Bell ☎ 01570 470035) at around £25 a pair labour. Alternatively, TA supplies cranks down to 150mm for £170, and SJSC also offer shorter cranks (see p83).

The 'Q-Factor' – the distance between the outer faces of the pedal cranks – is best kept as narrow as possible. A low 'Q' makes pedalling fast more efficient, boosts power as the knees are straighter under strain and decreases the frontal area for better aerodynamics. Always fit the narrowest bottom bracket axle possible so cranks and chainwheels achieve a minimal (4-5mm) working clearance to the chainstays. Chainlines are less important these days due to the flexibility of narrow chains. Having said this, try not to buy a bike with chainstays less than 40cm long (measured from the bottom bracket to the rear axle) so you maintain the full choice of gear options.




## TREK 1000 £529.99

Left: Piggy-back bottles keep bulk out of the airstream

Far left: Perfect welds from a high production manufacturer

**'a light aluminium frame that is Tig-welded to the highest standards'**

**At a glance:**

| | |
|---|---|
| FRAME | 7 |
| HANDLING | 7 |
| WHEELS | 5 |
| EQUIPMENT | 7 |
| OVERALL | 7 |

The Prima is Dave Yates' standard road frame and is sized in 2cm increments from 51 to 59 plus a 62cm (all centre to top). Our test frame has cast and lined lugs which adds £50 to the basic frameset price of £299. Frame angles are pure road with typical fork offsets producing average trail figures. Coming from a vastly experienced builder and rider, the alignment was perfect.

Two upgrades exist for those wanting to race competitively: the Prima 2000 has custom length, oversize Reynolds 631 down and top tubes, cast lugs and an option to alter the seat angle to suit. Above this, the Gold Medal has a 631 main triangle, Reynolds 725 seat stays with the option to specify tube lengths and angles. All steel forks remain Reynolds 531. This choice displays the beauty of buying from a custom framebuilder. They are there to give you what you want and the more you want, and are willing to pay for, the broader the smile! As Dave Yates says 'True custom-builds start from a blank sheet of paper.' A stark comparison to the 3-sizes fits all Giant TCR concept.

The Prima we tested would make a fine entry-level time trial bike and double nicely as a training or commuting bike. Because of the weight penalty of 525 steel, road racers would need to upgrade to a 631 tubed frame to be competitive. The paint quality and lug-lining were both to a very good standard and, with in-house paint spraying, the choice of colours is almost infinite.

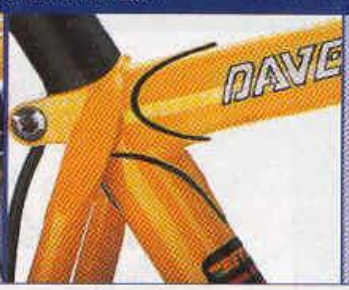
In keeping with all steel frames, the ability to repair damaged tubes or make alterations scores heavily over aluminium or carbon alternatives. If your beloved frame incurs accident or corrosion damage, Dave Yates' full workshop facilities allow long acquaintances to continue. Most steel frames can be repaired for less than buying a new frame.

The Dawes is designed to have near road racing geometry with enough compromise to offer mudguard clearance so it can double as a practical winter trainer or commuter. Be careful when fitting mudguards, however, as Dawes advises a maximum size of 23mm tyres to give the necessary clearance, especially on the front: SKS with quick-release clips are safest.

In keeping with its design brief, the Dawes has relaxed head and seat angles to keep the feet away from any mudguards. With a fairly low head tube, the geometry gives the potential for a good flat-back riding position. If preferred for time trialling, a few more degrees can be cheated out of the relaxed frame by pushing the saddle forward in the seat clamp, tilting the nose down a tad and raising the seatpin to re-establish the correct leg length.

The double-butted aluminium frame displays good, though not perfectly clean, Taiwanese welds which are easily bettered by the UK-applied paintjob. Carbon fibre forks are a real bonus on a frame of this price and their alloy steerer significantly reduces the overall weight compared to the Trek. Alignment was good and there is a replaceable gear hanger to safeguard writing off the frame in the event of a crash.

**DAVE YATES** £699 complete, frame and forks from £299



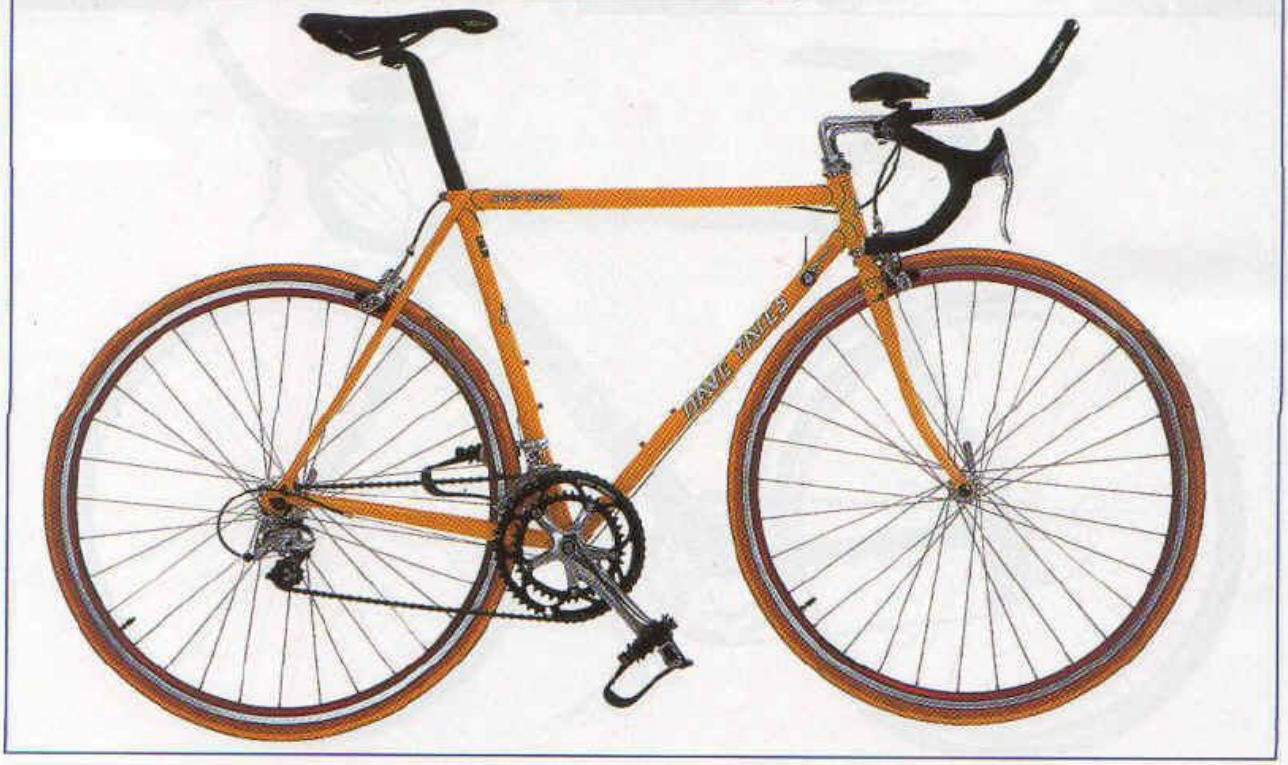

Left: Neat lugs and great paintwork contrast well with the black seatpost

Far left: the close ratio cassette is a great choice for time trialling avoiding big jumps between gears

**'great build quality and finish, longevity and repairability'**

**At a glance:**

| | |
|---|---|
| FRAME | 8 |
| HANDLING | 9 |
| WHEELS | 9 |
| EQUIPMENT | 8 |
| OVERALL | 9 |



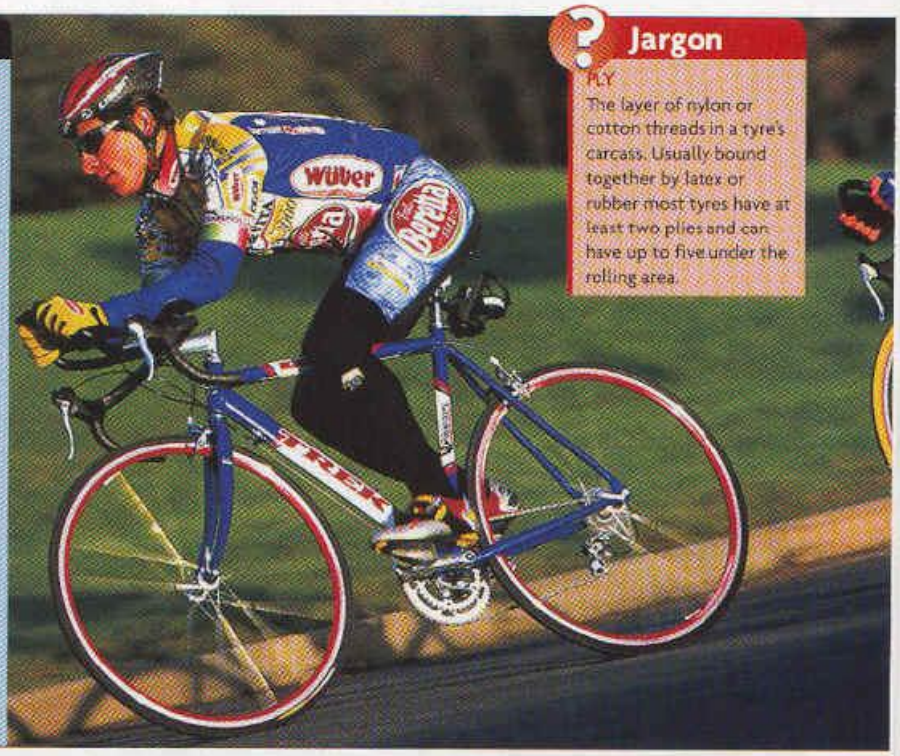
## Time trial kit

**• Tri-bars**

Tri-bars boost aerodynamics and comfort. Find a simple pair of 'sticks' that bolt on separately and have a reasonable turned up end for wrist comfort. Profile Carbon Strykes (£89) are light, adjustable and comfy and won't need upgrading. Cheaper aluminium sets will cost as little as £35 but make sure they are adjustable for reach and hand position. If you have a set of bar-end shifters that will fit into the ends of the tri-bars then you won't have to get out of the aero 'tuck' to change gear. If the shifters are only 6, 7 or 8-speed then substitute aluminium spacers for the surplus sprockets from 9-speed cassettes until a future shifter upgrade beckons.

**• Gear ratios**

During a typical time trial each gear will have a 3mph band at which the rider will be pedalling optimally. This is why most TT bikes have close-ratio gears – one tooth difference between each sprocket. A typical TT block will have 12-13-14-15-16-17-18-19-20 for a 9-speed cassette. Hilly courses require a more spread out lower end: for example 12-13-14-15-16-17-19-21-23. There is more speed latitude in each gear when you're standing up on the pedals or sat up on the back of the seat when climbing. Make sure you have a decent top gear so you don't spin out on 'ski-slope' starts when speeds can top 40mph. A 53T chainwheel and an 11-tooth sprocket will give a 130 inch gear which should cope with 45mph!




### Jargon

**PLY**

The layer of nylon or cotton threads in a tyre's carcass. Usually bound together by latex or rubber most tyres have at least two plies and can have up to five under the rolling area.

It's worth noting that while this is the 2001 Dawes 400 our test model has e paintjob of the more expensive Dawes 500.

## ANDLING

**ek 7 Dave Yates 9 Dawes 9**

he Trek handles like a road bike with a lively but neutral response. Down n the tri-bars there is enough feel to take you around traffic-free undabouts without due concern and without any nervous twitchiness. he semi-deep-section front rim did not affect the handling in windy nditions. Due to the generous fork offset I would recommend not using y front rim deeper than 50mm in heavily trafficked or windy conditions n the Trek, Dawes or the Yates. If you can find a straighter fork that gives lequate toe-overlap, then upgrade to this for time trialling as it will give a uch steadier ride, generating more stabilising trail.

Overall highish weight and poor quality wheels gave the Trek a cheaper el that the other two bikes. A later fork and wheel upgrade would make is a nice bike for entry-level TTs and road racing.

The Yates felt very capable right out of the box mainly due to the decent heels. Unlike the Dawes or Trek these non-machine built wheels had viously been de-stressed and trued before despatch. Hence no rubbing, pinging spokes and an instant, taut feel to the ride. Out of the three this as the only bike that could have been successfully 'raced from the crate'.

The 525 frame is stiff but, being steel and not aluminium, retains some mpliancy over bad road surfaces. This bike remained unruffled on fast wn hill corners and climbed well. Stability on the tri-bars was good but, with the other two bikes, I would steer away from using deep-section or gh surface area front wheels in all but still and quiet conditions.

The Dawes felt much lighter than the Yates or Trek and accelerated faster hich is important when getting up to speed coming out of roundabouts when starting a time trial. If your top speed is fixed by aerodynamics d power, then this is the only area to save time! Dawes' carbon fork is th light and reasonably straight giving a steady steering response on the i-bars. Dawes specify their own offsets for their Taiwanese made forks d, although this fork is aimed at providing typical road bike response, e end result felt good for an entry-level TT bike.

## HEELS

**ek 5 Dave Yates 9 Dawes 6**

big let-down compared with the frame, the Trek sports a sturdy wheel package based on deep-section Vuelta Airline rims and plain gauge stainless spokes. Although displaying a machined braking surface, both rims had a noisy joint because it is spigotted rather than welded. The semi-deep section rims should be strong enough to resist unseen potholes and make a reliable set of wheels once re-tensioned and trued after the first decent ride. The rear hub is a Shimano Tiagra but the front though sealed is unbranded. The all-black IRC Redstorm Classic tyres look the business but in my experience IRC tyres are disappointingly stodgy despite a light weight, and hence puncture-prone carcass. Only a C+ roll test will determine the real rolling abilities of these tyres that on paper show decent credentials with a widish 23mm section and 130psi rated maximum.

The Yates, by contrast, has a very bright wheel package with double-butted spokes handbuilt into semi-deep section rims with quality hubs. Secondary to a well-fitting frame, the wheel package is most important for speed and efficiency. As a result of the wheelset, the Yates sang along nicely.

Shallow aero-section Mavic CXP33 rim and Shimano 105 hubs make a classy wheel package for a £700 bike. By juggling the cost of down tube shifters against heavier and more expensive STI units Dave Yates spent the money where it really counts. The Thai-made Vittoria Open Corsa TT tyres are fine for gritty roads, where the chopped Kevlar in the tread helps prevent some punctures, but Kevlar is by nature resistant to movement and actual rolling felt poor, despite a 9 bar pressure rating. For personal best times or grudge matches, I'd definitely fit something livelier from Vredestein, Michelin or Veloflex which we have shown to save up to a minute over poorer tyres in a 10-mile time trial.

Although nicely colour-coordinated, and having a 120psi pressure rating, the Continental GP 3000 tyres are best kept for training and gritty courses. Due to their 5-ply carcass the Conti's are nicely puncture resistant but consequently tardy when rolled against something more supple like the 2-ply Vredestein TriComp.

Semi-aero Rigida Nova rims and plain gauge spokes make for a tough but unexciting package which is probably better destined for training than racing. Shimano's Sora hubs have conical dust covers to keep out road dirt and to prolong life. The freehub can take 8 or 9-speed cassettes and go down to an 11T sprocket for big gear crunchers!

## EQUIPMENT

**Trek 7 Dave Yates 8 Dawes 7**

The Trek' shift quality from Shimano's Campag-style Sora levers is very good and reliable for a budget racer. The down shift lever is difficult to reach from ▶

## Jargon

**DE-STRESSING**
When a wheel is built the spoke nipples drag on the end of the spoke thread giving it a slight twist. When a new wheel is ridden for the first few times some spokes unwind and cause the wheel to lose tension or go out of true. A wheelbuilder will always de-stress and re-true a wheel before it is christened to help prevent this happening.

the drops but this is unlikely to affect time triallists who will be reaching across from the tri-bars at hood level to shift. The gear ratios from the 12-23 cassette are perfect for riding evening 10s: close ratio gears from the first few gear before flaring out to accommodate hilly TTs or gentle warm up/downs.

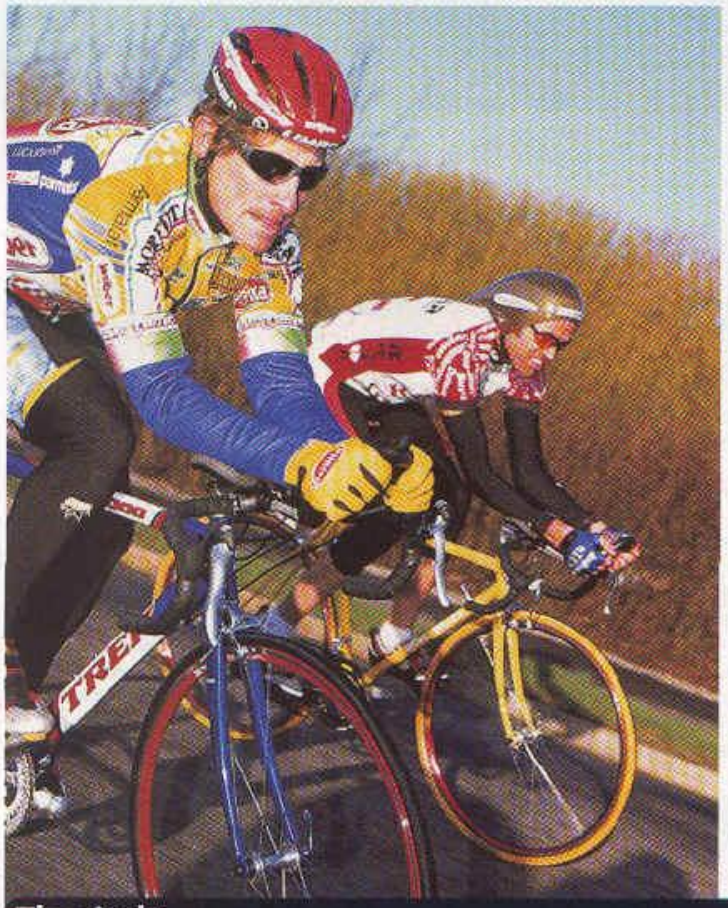
Some components on the Trek, however, do prove how difficult it is to produce a wholly decent racer for just over £500: the Cyclone chainset looks basic but does have shift rivets to assist changing. Similarly, the generic micro-adjust seatpost looks clunky but is very secure. Although the ProMax dual pivot brakes have a nice quick-release mechanism, they've got tacky decals and need a cone spanner to centralise – nowhere near as easy as Shimano callipers which can be centred by hand. The piggy-back bottle cages, however, are a useful addition and hold 1.5 litres of fluid in an aero position in the rider's slipstream.

In common with all three test bikes, the Profile Century Tribars depend upon the existing handlebar stem length for fit but the pads are width adjustable.

## Small frame – small wheels...

It is easy for a taller rider to find a shorter reach frame but can be very hard, almost impossible, for a shorter rider to find something comfortable. It is especially hard for women, who have shorter upper bodies, to find bikes with suitably short top tubes. So it's worth considering frames built for 650 wheels. There is an adequate supply of tyres, tubes and rims and, apart from actually fitting the rider for the first time ever, these bikes offer many advantages: they accelerate faster, they are more aerodynamic as the wheels are smaller and they allow the rider to get lower; they are lighter and will climb better.

Time trial wheels themselves have to be safe, maintainable and suitable. There is no point buying a fantastically aerodynamic pair of wheels that cannot be easily trued and are dangerous to use in blustery conditions. Be prepared to pay £100 for a second-hand pair and £200 and above for a new pair of light all-purpose wheels. Consider a pair of handbuilt (£36 labour charge) Mavic CXP10 rims, or Mavic CXP with double-butted spokes (£20) on Campagnolo Mirage or Shimano 105 hubs for a tough and fast set of wheels. Michelin SuperComp tyres (£25 each) or Vredestein TriComp (£27 each) high pressure tyres are repairable at the road-side and roll as well as good tubulars. Fit a lightweight, long-valve innertube to the deeper-section rim. Don't bother with valve extenders as these are prone to leaking and never find their way onto the spare inner tube.



The Yates has serious time trialling gear ratios with an 8-speed cassette running from 12 to 17 teeth in single jumps with a useful 'get-out' clause of 19 and 21 sprockets on top. The 52/39 chainset keeps overlap between the two chainrings to a minimum whilst coping with all but the hilliest time trial circuits.

The Yates' £699 retail price excludes tri-bars but includes a set of clipped and strapped pedals. Dave's use of down tube shifters saves weight and allows a decent standard wheel package. Shift quality was quaint but very positive and I reckon these down tube shifters could easily last the duration of this entry-level bike or get upgraded for a pair of tri-bar mounted bar-end shifters.

The Tiagra cranks and rear derailleur are complemented with a Sora front derailleur and steel headset, thereby keeping costs down where downgraded components suffice.

The classy looking black seatpin, Flite saddle, ITM bars and 3T stem finish the bike off well with components that would not need updating for a long while.

The equipment on the Dawes is generally very good with Sora flightdeck levers, mechs, chainset, hubs, cassette and bottom bracket. The only let down is the Tektro brakeset which has very sloppy pivots and no quick-release for removing the wheels.

The 13-26 cassette and 52/39 chainrings would only be suitable for sporting courses with no fast sections. With only a 108 inch top gear most inexperienced riders would be spinning uncomfortably above 30 mph. A close-ratio cassette as found on the Yates would allow the slick Sora shifters to keep pedal cadence under control.

Ritchey's Comp bars and stem are light and stiff but in my experience the Ritchey Logic headset has poor sealing and requires regular greasing if doubling as a training bike.

The Kalloy seatpin and Selle Octavia saddle both suit the classy finishing kit on this almost flawless racer.

Potential buyers could consider going down to the plain gauge frame Giro 300 which has the same equipment specification as the test bike. Alternatively, you could part with an extra £100 for the Tiagra equipped Giro 500.

## The rivals

**GIANT OCR 2 £525**
The original 6000-series aluminium TCR reborn. Lionised by Michael Hutchinson who won the 10, 50, 100 and 12-hour RTTC championships on this frame in 2000. It might only cost £350 but it is lighter than steel without compromising stiffness. Straight, aluminium, threaded forks, Sora groupset. Wheels okay for general TTs and hillies. Hard to beat at price. ☎ Giant UK 0115 984 6000

**RALEIGH R200 STI £500**
Like the R100, this is an entry level cromo framed racer. The R200 comes with a Tiagra triple chainset, the hundred quid cheaper R100 has Sora throughout. Both available in 21, 22 and 23in frames. Raleigh ☎ 01455 559700, Raleighbikes.com

**RICCI LOPRO/MIRAGE 9 £599.99**
Low top tube alloy frame, cromo Ahead style fork and Campag Mirage groupset specifically for time trialling. The top tube reach comes down to 51cm – 2cm less than Giant's small OCR/TCR frame. Sizes down to 48cm. Deda stem and bars, Trimatic saddle, Mavic semi-aero CXP 21 wheels. Ricci Ltd ☎ 01209 215787. www.riccitd.com

## TREK 1000

£529.99 complete
Trek USA ☎ 01908 282 626
www.trekbikes.com

### FRAME AND FORKS

Size tested: 54cm
Sizes available: 43, 50, 52, 54, 56, 58, 60cm
Weight as tested: 10.640kg / 23.5lb without pedals
Frame: Alpha aluminium
Frame Weight: 1915g / 4.2lb
Fork: Aluminium
Fork weight: 664g / 1.4lb

### BIKE DIMENSIONS

Top tube: 55cm / 21.6in
Seat tube (ctc): 51.5cm / 20.3in
Chainstays: 41.5cm / 16.3in
Wheelbase: 100.5cm / 39.5in
Head tube angle: 72°
Seat tube angle: 73°
Fork offset: 4.5cm / 1.8in
Trail: 6.6cm / 2.6in
B/b height: 26.7cm / 10.5in
Standover height: 78.5cm / 30.9in
Braze-ons: 2 x water bottle

### FRAME ALIGNMENT

Head tube: perfect
Rear triangle: perfect
Fork: perfect

### TRANSMISSION

Chainset: Cyclone 39-53, 170mm
Bottom bracket: TH cartridge
Freewheel: Shimano HG50, 12-13-14-15-17-19-21-23T
Chain: Campagnolo C9
Derailleurs: Shimano Sora
Gear levers: Shimano Sora
Pedals: none

### GEAR RATIO (IN):

| Chainring \ Sprocket | 12 | 13 | 14 | 15 | 17 | 19 | 21 | 23 |
|---|---|---|---|---|---|---|---|---|
| 39 | 88 | 81 | 75 | 70 | 62 | 55 | 50 | 46 |
| 53 | 119 | 110 | 102 | 95 | 75 | 68 | 68 | 62 |

### WHEELS

Front & Rear: 2H deep section rims on Shimano Tiagra hubs with stainless plain gauge 2mm spokes
Tyre: IRC Redstorm Classic, 700x23c
Wheel weight: f: 1360g / 3lb r: 1777g / 3.9lb

### OTHER COMPONENTS

Handlebar stem: JD alloy, 120mm
Handlebars: ccm, 42cm w/ Profile Century aero bar
Headset: VP
Saddle: Trek
Seatpost: JD
Brakeset: ProMax
Accessories: Profile sandpin water bottle carrier

## DAVE YATES PRIMA

£699 complete, F&F from £299
M Steel Cycles ☎ 0191 234 4275
www.msteelcycles.co.uk

### FRAME AND FORKS

Size tested: 54cm
Sizes available: 51, 53, 55, 57, 59, 62cm
Weight as tested: 9.950kg / 21.8lb without pedals
Frame: Reynolds 525 cromo
Frame Weight: 1911g / 4.2lb
Fork: Reynolds 631
Fork weight: 644g / 1.4lb

### BIKE DIMENSIONS

Top tube: 54.5cm / 21.5in
Seat tube (ctc): 53.5cm / 21in
Chainstays: 41cm / 16.1in
Wheelbase: 96.5cm / 38in
Head tube angle: 73°
Seat tube angle: 74°
Fork offset: 4.1cm / 1.6in
Trail: 6.4cm / 2.5in
B/b height: 26.8cm / 10.5in
Standover height: 77.4cm / 30.5in
Braze-ons: 2x water bottle

### FRAME ALIGNMENT

Head tube: perfect
Rear triangle: perfect
Fork: perfect

### TRANSMISSION

Chainset: Shimano Tiagra, 39-52T, 170mm
Bottom bracket: Shimano UN52
Freewheel: Marchisio, 12-13-14-15-16-17-19-21-23T
Chain: Shimano HG72
Derailleurs: Shimano Tiagra
Gear levers: Shimano down tube shifters
Pedals: toeclips and straps

### GEAR RATIO (IN):

| Chainring \ Sprocket | 12 | 13 | 14 | 15 | 16 | 17 | 19 | 21 |
|---|---|---|---|---|---|---|---|---|
| 39 | 88 | 81 | 75 | 70 | 66 | 62 | 55 | 50 |
| 52 | 117 | 108 | 100 | 94 | 88 | 83 | 74 | 67 |

### WHEELS

Front & rear: 32H Mavic CXP33 Shimano 105 Hubs with stainless plain gauge spokes, 2mm
Tyre: Vittoria Open Corsa CX TT, 700x23c
Wheel weight: f: 1187g / 2.6lb r: 1681g / 3.6lb

### OTHER COMPONENTS

Handlebar stem: 3T, 110mm
Handlebars: ITM, 38.5cm with Profile Century aero bar
Headset: Tange
Saddle: Flite Ti
Seatpost: Kalloy
Brakeset: Shimano Tiagra
Accessories: none

## DAWES GIRO 400

£599 complete, (F&F Custom select from www.dawescycles.com)
Dawes Cycles Ltd. ☎ 0121 765 2000

### FRAME AND FORKS

Size tested: 54cm
Sizes available: 50, 52, 54, 56, 58, 60cm
Weight as tested: 9.460kg / 23.1lb including pedals
Frame: Aluminium
Frame Weight: 1.795kg / 3.9lb
Fork: Carbon fibre
Fork weight: 562g / 1.2lb

### BIKE DIMENSIONS

Top tube: 54.5cm / 21.5in
Seat tube (ctc): 50cm / 19.7in
Chainstays: 41cm / 16.1in
Wheelbase: 98cm / 38.6in
Head tube angle: 72°
Seat tube angle: 73°
Fork offset: 4.2cm / 1.6in
Trail: 7.0cm / 1in
B/b height: 27cm / 10.6in
Standover height: 77.9cm / 30.6in
Braze-ons: 2x water bottle

### FRAME ALIGNMENT

Head tube: perfect
Rear triangle: perfect
Fork: within 5mm

### TRANSMISSION

Chainset: Shimano Sora, 39-52T, 170mm
Bottom bracket: Shimano UN40
Freewheel: Shimano HG70, 13-14-15-17-19-21-23-26T
Chain: KMC
Derailleurs: Shimano Sora
Gear levers: Shimano Sora
Pedals: unbranded with toe clips and straps

### GEAR RATIO (IN):

| Chainring \ Sprocket | 13 | 14 | 15 | 17 | 18 | 19 | 21 | 23 | 26 |
|---|---|---|---|---|---|---|---|---|---|
| 39 | 81 | 75 | 70 | 62 | 59 | 55 | 50 | 46 | 41 |
| 52 | 108 | 100 | 94 | 83 | 78 | 74 | 67 | 61 | 54 |

### WHEELS

Front & rear: 32H Rigida Nova on Shimano Sora hubs with stainless plain gauge spokes, 2mm
Tyre: Continental Grand Prix 3000, 700x23c
Wheel weight: f: 1240g / 2.7lb r: 1795g / 3.9lb

### OTHER COMPONENTS

Handlebar stem: Ritchey Ahead, 110mm
Handlebars: Ritchey Comp, 42cm with Profile Centur aero bar
Headset: Ritchey
Saddle: Selle Itali
Seatpost: Kalloy
Brakeset: Tektro
Accessories: none

## CYCLING PLUS VERDICT

At £510 to £700 these bikes are all suitable for entry-level TTs. The Dawes and Trek leave enough money in the bank to allow you to upgrade them with close-ratio cassettes and faster tyres to enable them to more or less match the race-ready Yates.

Whilst all three bikes would make good fair weather trainers, having upgraded the brakes on the Dawes and Trek, only the lighter Dawes would tackle road races. The Dawes will also take mudguards – with narrow tyres.

The final choice comes down to fit and a preference for steel or aluminium. If you can find a fit, off-the-peg then both the Dawes and Trek could be upgraded to make a decent entry-level TT bike. If you are female or need a custom fit then the Yates frame could be your entry into the world of time trialling and a string of very satisfying personal bests.

At this price point aluminium is a touch lighter than steel. The downside is that aluminium is more vulnerable to fatal damage and is harder to modify or refurbish – steel bikes are easier to repair and less likely to be written off after a crash.

### TREK 7

Team replica looks will go a long way but wheels will need an expert true-up after the first decent ride. Great value for money but leave some cash in the bank. A carbon fork is needed for road race status

### DAVE YATES 9

Represents the best of traditional handbuilt steel. Great build quality and finish, longevity, repairability. But there's more. If you need a custom shape frame then there is no other route. The wheels and components mean this bike is dialled for TTs but would need a lighter tubeset for road races

### DAWES 8

A leisure/training bike that could serve an apprenticeship as a TT bike or entry-level road racer with a few upgrades. Light frame with replaceable gear hanger and carbon forks boost response and hillclimbing and provide a very impressive spec for £600. Simply add tri-bars, close-ratio cassette, Tiagra brakes, water, stir and race!