



Two up

Tandems make ideal touring bikes for couples. Cass Gilbert and Cara Coolbaugh test the Thorn Raven Discovery and Dawes Galaxy Twin

Tandems bring out the best in people. This applies both to those who ride them, and those with whom they share the road. As riders, they encourage you to chat, share your experiences and act as a team. They're ideal for mixed ability couples, as they literally allow you to cycle together, at a pace that suits the two of you. As the long vehicles of the cycling world, they stand out more and enjoy a better road presence. And there's nothing like them to bring out a positive response from people you meet on tour, from cafe owners to border guards.

The Dawes Galaxy Twin and Thorn Raven Discovery are two models designed with load bearing in mind, though the way they go about it is quite different. The steel framed Thorn opts for mountain bike 26in wheels, a flat handlebar and Rohloff's 14-speed

internal Speedhub. The aluminium framed Galaxy Twin, like its solo namesake, favours the more traditional approach with drop handlebars, 700C wheels and derailleur gears. They ring in at quite different price points, with the Galaxy costing £1349 and the Thorn £2074 as built.

We're reviewing these bikes primarily in their touring capacity, though many will use them for Sunday rides and the weekly shop too. Packing carefully is all important on a tandem – with much the same capacity as a solo bike but two riders to account for. A four pannier set-up is thus more likely to be used even for UK summer tours, while a roll-top bag across the rear panniers will almost certainly be required on long haul journeys, when camping is on the cards. Both tandems are specified with front and rear carriers to take this into account.



(Above) Gussets to strengthen the joints at the Dawes' head tube (Below) The eccentric bottom bracket on the Dawes, necessary for chain tensioning

FRAME

The Raven Discovery uses Thorn's own 969 chrome-moly tubing, which is double butted, seamless, heat treated and cold drawn. While Thorn's marginally cheaper Raven Adventure uses a single extra lateral tube that is suited to lighter couples on tour, the Discovery has a double-marathon design, with a second cross tube below the stoker extending all the way through into a 'third' set of stays for maximum lateral stiffness. This puts it firmly in the heavy duty touring category.

The Discovery's rear rack bosses are oversized for extra load hauling capacity, with an adaptor allowing tougher M6 bolts. There's provision for four bottle cages on this size, a pump peg and a mounts for a rear disc, with cross braces for the extra braking forces. The cable runners themselves are neat

THORN RAVEN DISCOVERY

PRICE: £2074 as tested (Raven Discovery from £1799, Raven Adventure from £1699)

CONTACT: www.sjscycles.com, tel: 01278 441 500

WEIGHT: 21.74kg (47.9lbs)

SIZE: LS

SIZES AVAILABLE: SM, MS+, MM, LS, LL+

FRAME: Thorn custom 969 chrome-moly steel with Reynolds 531 fork. Fittings for 4 water bottles, front and rear rack eyelets, rear disc mount, pump peg.

WHEELS: Panaracer Hi Road tyre 26.1.5in (38-559), Mavic EX721 with plain gauge spokes, Rohloff Speedhub 500/14 and XT front hub.

TRANSMISSION: Rohloff Speedhub 500/14, Thorn 175/165mm cranks, UN53 Bottom bracket, 42T/48T chainrings, 16T rear sprocket, 38T timing chainset, Sram PC48 chains, no pedals.

BRAKING: Shimano XTR V-brakes

STEERING AND SEATING: FSA Orbit 1 1/8in threadless headset, alloy flat handlebars (57cm), alloy stems (front 120mm, 40 degree), alloy seat posts, Vapor Men's saddle, Veloplush women's saddle, Herrmans Comfort handlebars.

ACCESSORIES: front and rear Thorn chrome-moly Expedition and Low Loader racks, SKS mudguards

and plentiful, including two sets at the head tube to eliminate paint rub. The eccentric bottom bracket system looks crude, with two 15mm screws piercing directly into the shell to hold it in place. However, this should be very reliable in the long run, as only the bottom bracket shell will need to be replaced – with no possibility of frame fatigue. The same system is used to adjust the Rohloff chain tension, while specific dropouts negate the need for a tensioning arm and allow the wheel to be easily removed with a quick release.

The fork is made from tried and tested Reynolds 531 in a double-crown tandem gauge design for extra rigidity, with bosses for a mudguard and rack. Our model was an eye-catching glossy yellow, with a durable powder coating finish – cobalt blue and racing green are also available. There's a lifetime frame guarantee and five specific Raven Discovery sizes (SM, MS+, MM, LS, LL+) which are detailed on Thorn's website, as well as a further six Adventure sizes – each has a purpose as well as a recommended pairing. We tried out the LS, which had the shortest base tube of the Discoveries for stiffness when load carrying, and is aimed at a tall male pilot and shorter than average female. S&S couplings, to make the bike more train and 'plane friendly, are also available for £450.

The Galaxy Twin was designed five years ago, and has seen minor changes over the years from customer feedback. It uses a 7005 aluminium tube-set, employing an extra cross tube to aid lateral stiffness. Likewise, the base tube

'On steeper descents the Galaxy's powerful auxiliary Avid BB5, with its massive 205mm rotor, made all the difference'



(also known as the drainpipe), has been drawn into a large, elliptical shape to maximise stiffness and welding areas at the two bottom brackets. There's a large open ended gusset where the head tube meets the down tube, with fairly neat welding all round. The rear triangle is beefy to help handle extra loads, and wide to clear the 205mm disc rotor.

There's a vast range of fittings on the Dawes, including six bottle mounts, cable runners for V brakes, front and rear discs, a rear drum brake fixing point, mudguard eyelets and a rear kickstand plate under the bottom bracket. The rear rack mounts have been positioned slightly higher than normal to clear the width of the mechanical disc calliper, rather than spacing it out. The Dawes uses an easy to adjust eccentric bottom bracket to bring in any chain slack – a case of simply tightening down two Allen key bolts. The front fork is a unicrown tandem-specific chrome-moly affair, with a disc mount and relevant touring eyelets. It's well finished, in an



(Top) The Dawes' adjustable stem allows position tweaks but is better swapped for a rigid one long-term (Above) The budget sprung seatpost works okay





suspect that even with a firmer saddle, a carbon seatpost is about all you'd need.

The Dawes has livelier handling. Without luggage it feels more responsive but more care is needed when riding laden. My stoker noticed immediately that there was more twist in the frame than the Thorn. This said, we didn't find the Galaxy unduly wallowy. While there are two sizes available, we were only able to get hold of the smaller of the two for reviewing purposes. But despite my long legs and 6'1" height, the frame proved adaptable enough to fit both of us well; 58/46cm must be monstrous. The stoker's position is more open, largely due to the fact that the captain is more likely to lean forward on the brake hoods.

GEARING

I've toured with a Rohloff-geared bike several times in the high peaks of the Indian Himalaya, and have been impressed by both its reliability, ease of use and lack of delicate clutter when transporting it. On a tandem, its advantages are even more noticeable. The benefit of being able to change gears at a standstill, or when confronted by an unexpectedly steep hill, can't be overstated. Another benefit is the straight chainline throughout the gear range. It's a noisier system in the lower gears (this improves as it beds in) but any extra drag is far less noticeable than on a solo bike. However, we did find that operating the Rohloff on a tandem initially requires more communication, as gear changes are smoothest if both the captain and stoker back off momentarily with their pedal pressure. While we had to call out gear changes at first, after several rides this became more intuitive. Shifting between gears 7 and 8, which separate the low set of gears from the high set, needs extra care.

Rear derailleur shifting on the Dawes was very smooth thanks to an XT rear mech. It had a lightness that's missing from the Rohloff, despite the clean cable run on the Thorn. Dura Ace bar end levers are easy to operate and simple, even if they're not quite as accessible as on-the-hood STIs. However, shifting between chainrings is always an issue on a tandem and although the friction front mech allows less chain rub, it does take more feel to line up – the chainrings are too far back for the captain to see. While we didn't suffer from the chain dropping, on a couple of occasions it was lazy to shift down into the small

DAWES GALAXY TWIN

PRICE: £1349
CONTACT: www.dawescycles.com, tel: 0121 748 8050
WEIGHT: 20.7kg (45.65lbs)
SIZES AVAILABLE: 54/41cm (tested), and 58/46cm
FRAME: 7005 T6 Aluminium with chrome-moly fork. Fittings for 6 water bottles, front and rear rack eyelets, front and rear disc, front dynamo, rear drum brake and kickstand mounts.
WHEELS: 700x30C (30-622) Tioga Comodo tyres, 48H Rigida Sphinx rims, 14g stainless spokes and Dawes disc ready sealed bearing hubs.
TRANSMISSION: Truvativ Isis bottom bracket, Truvativ Firex tandem 170/175mm cranks 26/36/48, Shimano HG50 9 speed, XT rear mech, Deore front mech, Dura Ace bar end levers, Shimano HG73 chain, KMC timing chain, 38T timing chainset
BRAKING: Tektro V-brakeset, Avid BB5 with 205mm rotor and Avid lever
STEERING AND SEATING: Threadless headset, adjustable front and rear stems, road drop front bar (46cm), flat bar rear (59cm), rear bar ends, alloy seat post and suspension rear, Dawes comfort touring saddles.
ACCESSORIES: Bor Yueh alu front and rear racks, Dawes mudguards

appealing glossy forest green. There's a six-year frame guarantee and two sizes available: 54/41cm (tested) and 58/46cm, with two adjustable stems to fine tune sizing.

THE RIDE

Tandems are long, with two sets of forces being applied in two places across the frame, so lateral stiffness is all important in the way they handle. Tandemists are less likely to ride out of the saddle, so comfort across all the contact points is also key. This is even more important for the stoker who can't anticipate changes in the road surfaces.

Our 20 mile comparative test loop, ridden both with and without camping loads, involved city traffic, a bike lane, rolling country roads, a steep 3km climb and an equally steep descent. From the off, it was clear the Thorn offers remarkable stability. From a pilot's point of view, the steering feels marginally slower than the Dawes but more reassuring under heavy loads. The frame is incredibly stiff laterally, even when riding out of the saddle and negotiating fast turns, inspiring a very confident ride. At the back, the riding position feels upright compared to a solo bike. Yet it was comfortable: using the plush saddle supplied, there was no need for a suspension seat post at the back and we



(Top) The Dawes uses bar-end levers, the Thorn (middle) the single Rohloff twist-grip (Above) Neat cable guides on the Thorn head tube prevent paint wearing

chainring – not what you want with a big climb ahead!

While these problems don't exist on the Rohloff, we found our speed capped by the limits of the Rohloff's 526% gear range. Each of its 14 speeds is 13.6% apart. But whilst this can be lowered or raised as a group with different chainrings and sprockets, both ends can't be extended at the same time. Thus if you want to use a chainring combination that allows the maximum range of low gears (which you do on a loaded tandem), sacrifices must be made at the top end. Thorn supplied us with both a 42T and a 48T chainring to try, teamed with a 16T sprocket. This gives a 19-100in or 22-114in range respectively. We fitted the 42T chainring for hilly, loaded touring, but as a result found we geared out more quickly when riding unladen, where the 48T chainring is best. This is most noticeable if you're alternating between riding with and without baggage in different locales. The Dawes on the other hand has a wider 22-118in range, using an 11-32T cassette and a 26/36/48 chainset, and you could get lower gears still by fitting an 11-34T block and a 24T inner ring.

BRAKING

Careful use of the V-brakes ensured both tandems provided sufficient stopping power for general use. As there's so much mass involved, it's best to brake sharply but less frequently to reduce heat build up on the rims. On steeper descents the Galaxy's powerful auxiliary Avid BB5, with its massive 205mm rotor, made all the difference. Being a mechanical disc brake, it's easy to set up and there's no risk of boiling any fluid; again, the brake shouldn't be dragged or the pads can glaze over. Having the lever on the stoker's bars will appeal to some, but does require more communication to ensure it's applied at the right time.

Because of the position of the Rohloff shifter, there's more reach to the brake lever. Although the Thorn's high-end, XTR parallel push V-brakes brought us to a stop (even when laden), we felt that a third brake would be prudent, particularly when touring in hilly locales. Thorn can fit a Hope 6-pot hydraulic brake with a tough braided hose – but this will set you back a further £250.



Rohloff hub plus 48T chainring and 16T sprocket gives 22-114in gears

It can be fitted to the captain's bars, a set-up I prefer, or the stoker's. On the plus side, as the calliper sits flusher to the mount, it doesn't interrupt with a standard rack. A drum brake isn't compatible with a Rohloff, unfortunately, and this is still my preferred method of braking over a long descent.

WHEELS

The disc-ready Rohloff hub was built up with Mavic EX721 rims, using a reliable XT hub up front. The rims are effectively the same as D521s. I've had problems with these in the past on long tours, as have others, due to splitting around the spoke nipple – but haven't heard of any problems recently. A double walled, single eyeletted rim, they nevertheless strike a good balance between strength and weight. Heavyweight Sun Rhynos are also available, and I'd recommend these for the long haul. Tyres are Panaracer Hi Road 1.5s, which can be pumped to 85psi and offer a comfortable ride that's not too spongy.

Matching 32H rims are used front and rear and the wheels are fully handbuilt. You'd expect at least 36H on a tandem; Rohloff claim that because there is no dishing in the wheel, and the flange is larger, this is equivalent in strength to a 48-spoke wheel. There's some truth in this – possibly exaggerated – but in any case 32H rims are easy to source and spokes can be replaced here without removing sprockets. There's enough clearance to run Schwalbe Marathon XR 2.25in tyres without a mudguard.

The Discovery Twin has a set of traditional 48-spoke wheels, laced 4-cross, with sealed-bearing, tandem-specific hubs that are both disc ready.

Pleasingly, the Rigida Sphinx rims are double walled and double eyeletted. Spokes are plain gauge, and the wheel is hand finished. Tyres are Tioga Comodos, in a 30mm width. Pumped to 110psi, they're fast rolling too. There's room for 35mm tyres without 'guards.

EQUIPMENT

To keep to its price point, the Dawes came spec'd with a range of unbranded yet functional kit, including adjustable stems and handlebars. The Bor Yueh front rack is fine, if a little lacking in stiffness. Although the rear rack is cleverly positioned, we found it overly fussy with its spring operated flap, and the fittings hindered pannier mounting clips. As it's a shallow rack, it's also worth checking your pannier's stabilising clip will fit. The finish was a bit disappointing, and flaked easily. A suspension seat post at the rear helped tame potholes, without being too springy when pedalling. Cranks fitted as standard are 175mm and 170mm – as this is the smallest size frame, 165mm cranks would have been preferred for the stoker to help synchronise cadences.

While the frames are off the peg, to Thorn's credit the finishing kit is all but custom. This includes a choice of stems and handlebars, as well as crank lengths; 175/165mm were fitted on our test bike. SKS mudguards are the benchmark by which others are judged, but we'd prefer firmer saddles. Special mention goes to the front and rear chrome-moly carriers, both of which are supremely rigid and well up to expedition touring.

'The Rohloff's advantages: reliability, ease of use, and lack of delicate clutter when transporting it'

SUMMARY

If you can accept the need to ease off when shifting and its slightly more limited gear range, then the Rohloff hub is a much improved system for the tandemist. In the Raven Discovery, Thorn have created an impressively stiff yet comfortable frame, with excellent attention to detail across every point of the bike. The extras do add up, but at least what you get is of the highest quality. Thorn's 100-day guarantee is an impressive pledge, and one that we suggest making the most of if you're looking to invest in a serious tandem that's ideal for fully loaded touring.

Where the Dawes scores is in terms of its value for money: £1349 buys you a tandem that's ready for a range of uses, even if it's neither as refined as the Thorn nor as suited to heavy loads. It's still a very capable ride and as an all round quality machine that won't break the bank, it's definitely worth a look. We've even seen the 2006 model online in several places for just £1080 – a bargain.