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THE FUTURE IS HERE

Richard Sheppard on a lifetime hooked on flying free



ITV BILLY

Marcus King heads to Spain to test fly ITV's first full-reflex paramotor wing

ITV is one of the longest established paragliding manufacturers with a strong presence in paramotoring – but remarkably the Billy is their first full-reflex wing. I wanted to know how ITV's entry into the category stacked up against others.

But first, the name? Billy Bunter, punter... Billy no mates... Ikea's Billy bookshelf. "It's a joke, between friends, you had to be there..." laughs ITV's Heniu Dyduch, adding "this kind of name works well, everyone remembers it, like Pil-Pit or Bip-Bip. And it's easy to pronounce everywhere."

Heniu said that ITV, "wanted to combine some things that are quite difficult in the same wing: a

good top speed but with a good slow speed ability, it had to have good inflation and easy take-off behaviour, good manoeuvrability plus it had to have safe behaviour across the trim range."

Xavier Demoury – who also works with Nervures – led on the design, and the ITV test team was spread across three locations: at Nervures, in Annecy and further north with Ludovic Migneaux and Fred Mallard.

"We all talk together and try out the modifications each of us finds. Xavier concentrates on paragliding while Ludovic and Fred just test with a motor – we test both here. This system of

▲ A BILLY ON THE BEACH

Coming in to land in turbulent high winds the glider behaved itself perfectly.

Photo: Ed Ewing

development works really well for us and we all learn a lot. For the Billy it took a year from the first prototype until we were happy. As it was our first reflex we wanted it to be right."

Construction

The wing is made with Dominico cloth, a fabric ITV have been using more than 12 years. "We've found it ages particularly well and we have never had a problem with Dominico," says Heniu. "We make use of different weights of cloth through the wing. The elasticity of the material gives the wing very good behaviour in turbulence."

Nylon rods are long, and best packed concertina style. Rather unusually the rods aren't sewn in to the bottom surface seam and there are small triangles of Mylar-like stiffening material used, which create airscoops in the inlets. On the top surface two seams running spanwise are evidence of 3D shaping, used to reduce the billowing that can cause creases by the cell seams which can reduce performance. I was surprised to see no use of mini-ribs at the rear of the wing.

The Billy is all about usability. Sheathed lines are colour-coded throughout for ease of use, and the four-riser setup with split A-risers makes pulling big ears straightforward. Rather than having lots of adjusters and separate tip-steering like you'll find on Dudek wings, ITV have used thin webbing and an uncluttered design, meaning the risers are easy to hold in your hands during launch. The brake handles include tip-steering functionality, with a plastic-covered line running out from the corner of the handle to the tip of the wing. On some reflex

designs you have to reach for a separate tip-steering handle, which gives finer control – this is a simpler solution. If you are cruising in reflex mode you can still clip the brakes onto their keepers and then just reach up to the tip-steering to make course corrections.

As is common with power-specific wings, there are two brake pulley positions to allow for low and high hangpoint motors. The hangpoints at the bottom of the risers have a smaller loop within that can be used to compensate for engine torque.

Time to fly

My first flight was from a beach on the Costa Brava in Spain. Others were coming back to land, complaining conditions were getting windy and bumpy, but I decided to give it a go while I still could as the forecast looked worse later on.

The Billy rises steadily, and even with a reasonable amount of wind it doesn't come racing overhead – there is no real need to brake it as it reaches the zenith. Once there it takes very little control to keep it there. Applying the gas I was off in a couple of steps.

Conditions were indeed less than ideal for a first flight. The offshore wind was increasing, leading to mechanical turbulence. The wing did a good job of absorbing the rough stuff and it felt solid throughout the flight.

Kicking into a turn, the brakes felt heavy compared with free flying wings, but they're on a par with other reflex wings. In slow trim, the brakes were nicely effective and it was easy to get the wing banked up and round quickly. There

MANUFACTURER'S INFO

What they say: "The Billy is for everyone, from leaving school to competition."

Sizes (m2): 20, 22.5, 25.1, 28

Take-off weight (kg): 65-110, 80-120, 90-140, 110 – 160

Cells: 58

Aspect ratio: 5.4

Certification: DGAC plus EN load test

Online: www.itv-parapentes.com

▼ DETAILS

The tip-steering system is simple and easy to use

The trimmers give 18cm of travel.

The risers are colour coded, making it easy to grab the right line.

Set back A-lines and reinforcement in the leading edge.

Photos: Charlie King





wasn't too much ballooning after a sharp turn but, given the conditions, I wasn't throwing it about too much. In cranked-up turns you can really notice the square wing tips. Because of the shape, as you use tip-steering there is a large area of the tip that is reshaped, making the wing more manoeuvrable.

With a cloud line approaching indicating a further increase in wind speeds I decided enough was enough and headed back to the landing field. With the strong wind a flare wasn't really needed as I landed. A strong pull on the brakes stalled the wing nicely to the ground where I quickly gathered it up. The flight had been in less than ideal conditions but the wing had soaked them up just fine.

Early starts

The next day we were up early, leaving in the dark to get to our inland launch spot. Local fliers Karen Skinner and Jason Whitehead had invited us to fly the volcanoes of Olot. We arrived in the take-off field to find a fickle, very light wind and damp grass. This was going to be a good test of the Billy's launch characteristics.

My normal nil-wind launch method is to run power to get air flowing above the wing, then momentarily let off as I take the first couple of steps forward. The wing starts to rise then I'm back on the power to help push me forward. This method worked perfectly on the Billy with the

wing rising smoothly overhead and I was soon airborne. With the trimmers set a little up from the slow setting, my take-off run was no longer than the paraglider wings I was flying with. With my Thor 190 engine and the trims on slow the climb out was quick and efficient and once up I needed little throttle to maintain level flight.

The group gathered in the sky and we set off towards the volcanoes. I left the trimmers on the slow setting as I didn't want to leave the paraglider wings behind. It was soon obvious even slow trim is reasonably fast as I arrived at the volcanoes with Ant Green well ahead of the rest of the group. The volcanoes looked spectacular, with the craters clearly visible above the tree-lined slopes. In the still of the early morning we dropped right down and flew tight circles right inside one of the craters – much fun.

Leaving the volcanoes for the valley we saw some hot air balloons lifting off. I'd never had the chance to fly near balloons, and so while the others carried on our pre-planned route to a nearby lake, Ant and I headed over to this new temptation. We enjoyed a few moments waving at the passengers as we circled them a few times, with Ant giving them an impromptu acro display.

To get home, we had to push into a headwind so it was time to let off the trimmers. Letting them off gives a travel of about 18cm from slowest to maximum. This gives a noticeable increase in

▲ COLOUR COORDINATED

On an early morning flight to the volcanoes of Olot in northern Spain.
Photo: Ant Green

► BILLY AND HIS MATE

Marcus makes friends in Spain. There was little to no ballooning in the turn, he observed.
Photo: Ant Green

speed – though it's not quite as quick as the Dudek Universal, which has a large trim range. Parking the brakes on the keepers I was able to let the wing get on with it riding out the odd bump well. Looking up you can see the wing initially surge forwards before the reflex kicks in, stopping it continuing forward. For course correction I could easily reach up to the tip-steering as needed. The lack of roll makes for a serene ride with no oscillations setting up and the wing feeling very parked overhead. Even at full speed the Thor 190 was able to maintain level flight at relatively low revs – always a good thing for fuel consumption and noise levels.

Arriving back at the airfield, there was still very little wind low down as I made my final approach. A good long flare saw me back on the ground with no excitement: the wing's reactions were smooth and predictable.

What size?

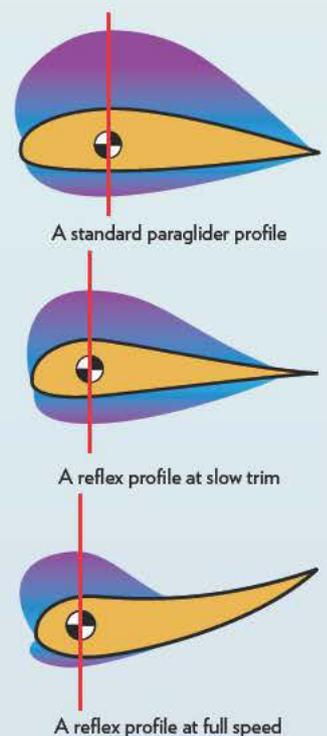
I flew the large size: at 28m² its weight range is 110kg to 160kg. At my all-up weight of 120kg, it felt a little lightly-loaded. Afterwards, I flew a Dudek Universal at the same wing loading, and found a similar secure and damped feel – although the Billy did seem a tad more manoeuvrable. Moving down to the smaller size of Universal

changed things dramatically, and I would have liked to try the 25m² Billy to see how being higher up the weight range would have improved things. I handed the wing to editor Ed Ewing who, at 130 kg all-up, found the Billy 28m² a much better fit for him – better sized than the 26m Ozone Roadster 2 he had been flying. There is quite a bit of overlap in the sizes of the range, so do try two sizes out before buying.

Conclusion

The Billy is a great step up for power pilots who want to move on from classic paraglider wings. It's built for both speed and comfort. You won't find the take-off and landing any more demanding but you will get a huge increase in speed at the top end, which is really useful if you want to go places. It's a functional wing with elegant, uncluttered risers, colour-coded lines and launching as easy as a free-flying wing. The tip-steering is efficient with a smooth transition between it and the brakes. Above all, the Billy is a wing for the many, not the few. If you're after an easy cruiser to take you on some mid to long distance adventures in 2015, it should definitely be on your test flight list. ✎

Marcus flew a Billy 28 with a Zenith Thor 190



What is reflex?

A reflex profile enhances pitch stability by adding an effective elevator into the wing. This moves the centre of gravity forward, making the wing more stable. As a reflex wing is accelerated the centre of gravity moves even further forward, making it increasingly stable. This means near-bombproof stability, which lets PPG pilots go hands-off at speed. The trade-off is an increase in sink rate, but when you have a motor on your back that's not so important.

For pilots used to flying a classic paraglider wing the biggest issue is learning to forget the active flying lessons that will have been drummed into you. Applying brakes destroys the reflex and moves the centre of gravity backwards, making the wing less stable. So pilots have to learn to 'trust the reflex'. All reflex wings have tip-steering that pull in the tips without affecting the reflex profile, allowing you to steer.

Introduced to wing design in 1994, reflex is also found to a degree in some free-flight paraglider wings.