

BETWEENTHESHEETS

APCO LIBRA

Bob Drury and JC Skiera get to grips with APCO's latest EN C sports wing



APCO'S DESCRIPTION?

Libra is our latest cross country high-performance glider, which has the finest handling ever made by APCO!

BACKGROUND

APCO, Agur Products Company, (Agur is a crane bird in Hebrew), is arguably the longest standing manufacturer in our sport. In fact, owner and co-designer Anatoly Cohn started his design career back in 1969 when he designed a hang glider that ultimately got him deported from his home in the former USSR.

Moving to Israel, Anatoly started manufacturing

hang gliders in 1974. He formed APCO in 1982 when he married and had a spell making both ULMs and hang gliders. By 1986 though, the floppy wing revolution had begun and Anatoly threw himself and his creative imagination into it. And if one word sums up APCO it would have to be imaginative. Even now Anatoly is still a man firm in his beliefs, and that conviction comes through in his designs.

"I won't compromise pilot safety just to make a product look better!" he told me three years back when I, perhaps brashly, told him that the thick 25 mm wide risers on the Lambada looked old fashioned, industrial and decidedly uncool

compared to many of his rivals. Typically, Anatoly thought his way around the problem without compromising his beliefs, as you will see in this review.

Anatoly's imaginative approach to design brought him no end of success, particularly through the late 90's when APCO's gliders were the wings of choice for many world record holders. To date 13 World records have been set on APCO wings and Anatoly still offers a healthy \$25,000 reward to anyone capturing an FAI open distance or declared goal record on a standard certified APCO wing.

APCO manufacture in Israel, where they run



all their design, testing and manufacturing. Anatoly still heads up the company where he now works alongside Adam Wechsler, the company's main test pilot and co-designer.

The Libra enters the APCO family to replace the Lambarda, an LTF 2 wing from 2006. It sits above the Vista LTF 1-2 and is the highest rated cross country wing they make.

As with all the wings in the range, APCO have chosen not to use the 'zooming' system most manufacturers use to scale their different sizes. Zooming up and down means the wing is designed around whichever size fits the test pilot, then the software either scales each component up or down to make bigger or smaller sizes, keeping the shape and the aspect ratio the same.

APCO however, use a different system, which removes or adds cells in the centre of the wing to change the area, while keeping the chord the same in the centre of all sizes. This means the smallest Libra has 52 cells and an aspect ratio of 5.54 and the largest has 57 and an aspect ratio of 6.06. Basically, the smaller the wing the dumper they get and the larger the longer and thinner they are.

Whilst those in favour of zooming sizes say it is the best way of retaining the same characteristics across the range, Anatoly disagrees.

"We have used the same method for years and it works. By keeping the chord the same we are able to keep the same handling, in particular the same brake range, across all the sizes. Then we change the area of the wing to fit the size, which means the aspect ratio changes. However, the handling and behaviour of the wing remains the same."

Anatoly is also quick to point out that this design approach produces better wings because smaller gliders are naturally more aggressive, so it makes sense to reduce the aspect ratio of them. Equally, the larger the wing the more docile it becomes in its reactions, so the more they can increase the aspect ratio.

OUR OPINION

Opening the box that arrived from APCO I was met with a very complete package. The box contains a glider, a stuff sack and rucksack, a repair kit, a DVD, speedbar and even stickers.

Unfolding the wing for the first time you

immediately get a feel for the Libra's individualism. All but the inter-cell walls of the wing are made entirely from Gelvenor, a fabric used less and less these days in the industry. Gelvenor, if you don't know, is a harder-wearing fabric than normal ripstop, due to an additional silicon coating, which makes it slightly heavier than conventional fabric and gives it a completely different feel.

APCO have also stuck with their long-standing tradition of sewing the lines directly into the under surface of the sail rather than into traditional line tabs, which they say helps reduce parasitic drag.

The Libra also incorporates APCO's Flexon battens, which are now a feature across the entire APCO range. Introduced first in 2003, Flexon battens are thin, plastic wires that reinforce the leading edge. APCO say it has removed the need for the heavyweight Mylar fabric that most manufacturers use to add rigidity to the leading edge. In doing so they have reduced the glider's weight by half a kilo. While Mylar is easily damaged through creasing, APCO say that the battens show no sign of sustaining damage through poor folding or storage.

The risers are another unusual and well thought-out evolution of Anatoly's 'no compromise' approach to safety. Rather than use a thinner 12 mm tape to reduce drag as everyone else is doing, he has cleverly taken the same 25 mm tape, folded it in half with a twist to turn the narrowest edge towards the airflow and then sewn it together to form a more aerodynamic, tear-shaped section – the result is less drag for the same strength! Genius!

The brakes clip on with little cloth-covered magnets, with swivels to stop the lines kinking over time. Instead of connecting to a static point on the D-riser, the brakes connect to a tape that is joined to the top of the C-riser then passes through a ring lower down on the D-riser before coming out to the brake itself. The result is what APCO are calling an Accelerated Flight Brake Compensator. In short, as the speedbar goes on and the A, B and C risers come down, the brake line gets released and goes up, which stops the brake coming on during accelerated flight.

Despite all of APCO's impressive innovation, when I reviewed the Lambada, the Libra's predecessor, three years ago. I'd found it very difficult to settle on. At the time the company described it as the best-handling wing they had ever made. With APCO bandying the same catchphrase around with the Libra, I naturally approached the glider with some apprehension. Hoping to broaden the XC Mag test team's taste buds, I asked along JC Skiera, a very experienced flying friend of mine, to experience the Libra too.

FLYING THE LIBRA

The Libra has split A-risers giving you the choice to launch on just the centre As or all of them. The result is a very easy to control wing and launching is uncomplicated. JC even commented "The take-off sequence was so straightforward that I thought the glider would probably be a bit dull."

So with JC worrying that the Libra may be too dull, and myself wary that I might not settle on it, we set about the most important part of the review process, the flying bit. First, I let JC take the Libra off for a few days flying on his own.

"The first thing I noticed is the very light brake pressure, even flying at the maximum payload," he told me on his return. "This could be a little

unsettling if your last glider was a tank, but it's great on long flights."

"It's agile and precise in thermals. The wing doesn't turn flat, but likes to be well banked up with lots of energy. A nicely co-ordinated turn follows, with no tendency to slide. The radius can easily be adjusted with either the inside or outside brake. Moderate weightshift seemed to produce the best results as too much leaning into the turn gave the glider more bank than necessary and took it too close to a spiral-like configuration, for my liking at least."

Once it was my turn to fly the Libra, I found I agreed with everything JC said. The Libra was at its happiest in thermals. It loved being turned tightly and, as JC discovered, will wind into a super-tight circle at the drop of a buttock. You can control it with either brakes or weightshift and I really liked the amount of manoeuvrability the wing had. Wingovers and big reversals were coordinated and energetic at the high wing-loading we were both flying at.

Performance-wise the Libra holds it own. The trim speed is competitive and the speedbar very usable. There is little drop in performance on the first half of the bar, so in the Alps I was using half to full bar confidently on all my glides and enjoying a very competitive glide at up to half bar.


However, there was still something a little different about the Libra that I couldn't quite put my finger on. It took me a while to pinpoint it to a certain springiness that the wing has in the air. It almost absorbs the shock of turbulence as it hits it and has an elasticity in the way you can fling it around in thermals. I wondered if this was a result of the Gelvenor cloth having slightly more give in it compared with other wings, but co-designer Adam Wechsler tells me he thinks it's simply a result of the line arrangement. Either way, that slight absorption of turbulence makes for both a reassuring and smile-inducing ride once you get used to it.

"It's a very characterful glider!" was how JC summed it up. "A nippy little GTI with a difference."

I love nippy, sporty wings, and the more I flew the Libra the more it blew away the disappointment I'd felt with the Lambada three years ago. It's got a big character, the kind you might need a little bit of time to get to know, but then once you do, you find a faithful and fulfilling friend to play with.

Over the course of several weeks and 15 hours I went from being a sceptic, unsure of the slightly unusual feedback the Libra was giving me, to a full blown Libra lover who now doesn't want to give the glider back. If you've never flown an APCO before and are looking for a new EN C / LTF 2 sports wing, then the Libra is a must-try wing, but give it more than a five minute test flight. If the Lambada didn't suit your taste, then throw your premonitions away and greet the Libra with open eyes, you may well be like us and not want to give it back.

IN A NUTSHELL

A fantastic glider with mid to high-level agility and handling for the class, making it a great choice for long, comfortable cross country flights. If you are ready to embrace the sports class this is a very satisfying wing that can carry you into your early competitions and beyond. 

THE REVIEWERS

Bob and JC flew a Libra S at 95 kg.

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