SKY Metis *– Tandem Paraglider Review by Dave Perrin (SKYWINGS 4/2005)*

My Background:

I am a senior paragliding instructor and tandem pilot - one of the few remaining in the UK! – with about 13 years paragliding experience and have no commercial links with the importers. Most of my flying is commercial tandem flying on the South Downs in the Brighton area. I substituted the **Metis** for my usual tandem wing and used it commercially for about a month. Therefore this review will no doubt reflect the suitability of the **Metis** to fulfill that role - although I will try to address some broader aspects of tandem flying as well.

Sky Background:

SKY Paragliders have been making significant inroads into the British paragliding market is recent years but may not be very well known away from the importers immediate catchment area in the South. **SKY Paragliders** is located in the Czech Republic and have been making paragliders and associated equipment since the late 80's. Their continued expansion led to the construction of a purpose built 'state of the art' manufacturing facility that opened in late 2002 and is said to be 'a showpiece within the industry'. Although a Czech company Sky's chief designer, Alexandre Paux, is Swiss and looks after product design and sales from Switzerland.

Materials and Construction:

The **Metis** is manufactured using 'Porcher Marine Skytex 9017' throughout, although the coating used is different for each area of the glider. For the technically inclined/informed the top surface uses an 'E77A' coating that is a 'bilateral water base coating that impregnates the fibres rather than just the surface'. The bottom surface and internal ribs use 'E38A' and 'E29A' coatings respectively. The **Metis** is an original design rather than a scaled up version of an existing model although the sail-plan is similar to other Sky models such as the Atis and Brontes. The Sky range of gliders have been accused of looking a bit retro because of their sail plan shape ie. non-straight trailing edge outboard and tapered tips. However, the buzz on the hill from certain quarters suggest that far from being behind the times Sky may well be ahead of the game – watch this space! The **Metis** sail plan is similar in this respect but it appears to be a little more elliptical at the tip which maintains the chord further outboard. The overall sail construction looks fairly conventional but up-to-date with 52 cells and cross rib bracing throughout. The leading edge ports are fairly narrow for a tandem wing and the outer four cells are closed at the front. Sky has recently overhauled the sail livery on their entire range with a distinctive large contrasting 'S' shape on the upper and lower surfaces.

Rigging:

The rigging is made from German 'Edelrid' line with the upper cascade using 1mm dyneema line and the lower rigging being made from 1.5mm and 1.8mm line with an 'aramid'core. There are four 'A' lines per side with the outer two lines used for pulling 'big ears'. The four outer brake fan attachments at the trailing edge are connected to tapes that run through small plastic rings – thus pulling in the trailing edge in at the tip, no doubt to help the turning characteristics and roll rate

Risers:

The risers are well made from 25mm nylon webbing with substantial webbing and trimmer buckles operating the speed system on the 'C & D' risers – the trimmer arrangement on my current tandem wing is less substantial and is wearing badly – so a definite positive point here for Sky. The lines are attached via triangular 'maillons' with neat line tidy inserts. The 'A' risers are split, held in place with a popper and fitted with a lightweight webbing loop for pulling big ears. The split 'A' has two short lines that attach part way up the two outer 'A' lines, rather than carrying the 'A' lines proper. The control handles are the size I like – I can just pass my hand through the loop and hold the line - and the handle inserts are not too stiff. They fit the hand well and are attached to the risers by magnetic poppers. I did find that the brake handles came off the poppers more than usual when ground handling but this is probably more of a personal thing as I move the glider around on the ground a lot using just the brake lines.

Ruck Sack:

Paraglider ruck sack design is important at any time but even more so for the tandem market. My tandem kit weighs 30 kilos + and an ill fitting, uncomfortable ruck sack will spoil my whole day, especially as a steep 500' climb up Mount Caburn is often a daily occurrence. Sky have recently introduced the 'Porter' ruck sack for all their glider models - it comes in two sizes 'L & XL'. I was very impressed with the tailoring and the materials are good quality - gold/black and grey cordura. The waist strap and shoulder straps are padded with anti sweat mesh material on the reverse. The storm flap over the top is large and well fitting with a large zipped pocket on the top – this pocket is not designed for a helmet, like some, but there is plenty of room inside the bag for extra helmets and stuff - I had no trouble getting all my tandem gear in it, with room to spare. The sack is tapered at the bottom which keeps the bulk and weight high up where you want it and ensures that the pack is tight and not flopping around even if it is not completely full. I have had several hikes up Caburn with it now and it does the job admirably. However, I would like to see the padded shoulder straps a little broader and slightly more substantial on the tandem XL version.

Spreaders:

The spreaders have two passenger height positions and a main suspension point that is adjustable and a single pilot in charge position. Each suspension point is reinforced with anti-wear material and nicely formed making it is easy to attach and release the passenger quickly – which is very important. I have two passenger points on my own spreaders but only use the lower one because it is too difficult to release the upper one quickly. The main attachment point to the glider has a couple of loops fore and a couple aft of centre to give adjustment to allow for extremes of pilot weight. I tried this for a light pilot but the adjustment spacing seemed a bit too coarse. I think one loop either side of centre would be enough and only necessary for very light/heavy passengers – an excellent idea I thought – but I need to play with it a bit more.

Tandem Requirements:

In the South of England and most of the UK we do not have the luxury of high launches with a guaranteed 30 minute plus top to bottom flight, like the Alps for example. So the kind of flying and the kind of tandem experience we can offer is different to other parts of the world and the glider requirements can differ also. We tend to fly with a reasonable amount of wind most of the time, we often give two or more shorter flights rather than one long one, we do a lot of slope/top landings and we are often flying in crowded conditions. Therefore, a glider must have a reasonable top speed with a good trimmer system. Ground handling and landing characteristics need to be good with the high number of take off's and the large percentage of slope landings. It also follows that inflation and ground collapse characteristics are very important together with maneuverability in the air and brake pressure, especially in crowded skies. For example, my current tandem is quite heavy to handle but I prefer it to my previous tandem which was lighter but had a much bigger turning circle. Anyway, a good all-round compromise here is essential but I personally have a preference for steer-ability. Once upon a time if it was windy and there was anyone flying a paraglider then it was usually ok for a tandem to fly, because they were faster than most other wings. Not so anymore, as many gliders even 1-2's will fly as fast or faster than most tandems. Sky quote 45km/h as the max speed of the **Metis** which is similar to most other current tandems, with the exception of one. The **Metis** is certified AFNOR Biplace, has a aspect ratio of 5.1 and a projected area of 35.52 m2 and a weight range of 140-210kg which again is all very similar to most current tandem models. But all this doesn't tell you how it feels to fly, especially if you don't fly tandems yet. I am no test pilot but a personal opinion going on how the glider looks and how it feels in flight I would say the **Metis** equates generally to a mid/upper range 'Standard' or '1 / 2' glider with reasonable handling – but remember we are not really comparing like with like here as tandem wings do a different job and usually operate at a higher wing loading than solo wings.

On the Ground:

The **Metis** seems to have a slightly slimmer profile than some more basic tandem wings but it does not have the higher aspect ratio that often accompanies it. The lack of excessive span means that its directional launch characteristics are good - it certainly behaved with me when reverse launching. I prefer to bring the wing up slightly cross wind on one 'A' riser as a rule and the **Metis** didn't seem to mind this at all – some gliders do. I experienced no tendency for the glider to hang back during these and conventional reverse launches, which again some tandem wings can do. In fact reverse inflations in general were reasonably dynamic but not excessively so, as the wing did not have a tendency to overshoot. I tried several forward launches with trimmers full off, full on and through the range. The faster the trim the faster the glider

ascended, as you would expect, but it always settled overhead with the absolute minimum of pitch input. With the trimmers full on there was a very slight tendency to hang back a little but certainly no more than one would expect and less than most tandems I have flown. On landing, if winds are light I usually collapse a tandem on the brakes or rear risers. However, if the wind is quite fresh I prefer to use the A's. My current glider has quite a deep profile and resists collapse this way but once collapsed re-inflates too readily. The **Metis** seems much better in this respect making it easier to gain control of the glider after landing, I guess mainly because of a slim(ish) profile and smallish leading edge openings. I selected one of my larger fellow pilots on the hill on a virtually nil wind day to check out the nil-wind bottom landing characteristics (thank you Nigel). For the landing approach I took one wrap, had a long glide in at trim speed and left the round-out as long as possible. The glider flared beautifully, maintained its glide with no tendency to balloon up or overshoot – although my passenger ran in perfectly I felt that the landing would still have been fairly gentle if he had lifted his legs as most commercial passengers do! I think that the landing speed may be a little faster than I am used to but it is not a problem because of the good glide angle and progressive flare.

In the Air:

The **Metis** has quite light brake pressure for a tandem wing – about the same as a heavy(ish) solo wing – which is good. Surprisingly the brake pressure did not seem to increase very much as the payload increased. I flew the wing at both ends of the weight range and only remember a slight increase in brake pressure compared to what I am used to, where at the top end of the weight range the controls get very heavy. Through the first 30% of brake travel the pressure increases progressively but is still quite light. After 30% travel the pressure increases significantly, which coincides with a significant increase in roll rate when turning or degrading performance when flying straight. Therefore, the increasing back pressure serves as a bit of a warning exactly when it is needed - it is difficult not to quote the manual here as it reacted exactly as the manual explained. Flying in crowded skies with a tandem is often very stressful because they will not usually turn tight enough. The **Metis**' roll rate however gives you the confidence to 360 with the solo's - I don't think it turns much tighter than my own tandem but it does it with much reduced control input and pressure. The **Metis** handling is smooth, progressive precise and light which means there is less need for weight shift at low or high angles of bank, this makes thermaling a much less tiring exercise. I didn't get chance to fully enter a spiral but approached it and I'm sure you could get it in within one turn. You certainly can't do that on my own or some other tandem wing/s very easily. This maneuverability reflects the confidence inspired by the **Metis** handling making it good for fast descents, small landing fields and thermaling. Pitch feedback is good, the glider tells you what's going on but is damped enough to look after itself most of the time.

The load on the trimmers and therefore the C/D lines seems very low. When you let the trimmers off you have to shake them around or feed the webbing through the buckle to get them started, also there is no neutral trimmer marking. The load on A/B's on the other hand is enormous. I found it very difficult to effectively pull and hold 'Big ears'. If I kept hold of the brakes and used the thumb tabs on the split A's then as the ears came in the brakes would come on and oppose the action. I had a little more success if I released the brakes or reached up the 'A lines' as far as possible, but the pressure was still enormous. When trying to pull in just one ear I couldn't pull enough to make the glider turn. The manual also says that due to the high internal pressure it is 'practically impossible' to 'B line' the **Metis** – after trying big ears I can believe it. Personally I find 'Big Ears' of little use on a tandem and have always been wary of them.

Summary:

The more I flew the **Metis** the more I liked it. It did everything a tandem wing should do but the handling felt much more like a solo wing – so less tiring and more fun. I did not get a manual with the glider but was sent a rough English draft and it seems very good – focusing heavily on the actual flying of the wing. The quality of the construction and materials used seems very good – not least of all the rucksack. Negative points are few and relatively minor. Maybe re-position control handle/riser popper position, neutral marker on trimmers perhaps, more padding in ruck sack straps and some method to help pull Big Ears for us wimps with short arms.

Conclusion:

I was sad to give the **Metis** back and return to my trusty old? If I need a new tandem in the near future The **SKY Paragliders Metis** will definitely be on my short list.