



Test Century



SOMETHING A LITTLE OUT OF THE ORDINARY FOR TOM STACEY THIS MONTH AS HE VENTURES OUTSIDE WITH A HELI FOR ONCE. IT'S EITHER THE GOOD WEATHER OR A VERY GOOD HELI THAT HAS TEMPTED HIM...



KDS helicopters have gone from being quite low profile in this country to all of a sudden being on the shelf in nearly

every model shop I go into. I also know quite a few fliers that have been punting their bigger stuff about with very positive reports, so no wonder distributor Century UK have got behind the KDS range in a very big way recently, releasing this, the Innova 450 QS and its bling brother the 450 Q. Now if you are a 450 size frequent flier, or have just received a large payout courtesy of the National Lottery, then the Q model is for you. If however, you don't have a spare nearly-£400 lying about then the QS would definitely be the beastie you want.

With a retail price of under £230 'Ready-to-Fly', or an incredible £169.99 'Plug and Play' (that means without transmitter, receiver or battery), this heli offers a compelling way into 450 size ownership for a credit crunch busting price. I love a bargain, so I was very interested in acquiring one of these latest models to review right here in your favourite R/C helicopter magazine.

Features at a glance...

- CNC headset
- Carbon fibre frame
- Carbon fibre 325mm main blades
- CNC tail gearbox
- Direct belt drive system
- Pre-installed electronics
- Brushless out-runner motor

OUT OF THE ORDINARY

As regular readers will know, on the whole, I am an indoor flyer, being a founding member of my local indoor hall-based club, where we have an unwritten rule that a 450 is the biggest we generally go for on flight night. Most of my fleet is 120 and 250 sized, and I didn't want to start prancing walls, so with this new KDS machine, it would be one of my first outdoor flights since testing Rotorworld's Parrot AR.Drone 2.0; quite a different proposition I think you'll agree! I was also quite keen to have a fly of this heli as it is mainly of plastic construction, and again, some of you may know, I am a big supporter of the plastic chopper (no sniggering in the back row!).

In my experience plastic is often more robust in a little crash, and in a big one,



The Innova 450 QS comes in a box that is much like all other RTF electric helis

tends to be a lot cheaper to repair. Yes, it can wear out quicker, and doesn't give that razor sharp flying feel, but on the whole, I think 85 per cent of pilots would be fine with plastic, and certainly I think for a machine in this market segment, it is perfectly fine. So, although this KDS was a little different to what I regularly fly, I'm not short of experience of flying 450s, and was intrigued to see how this cutting edge product compared to some of the stuff I'd had before.

UNBOXING AND INCLUDED EQUIPMENT

The KDS 450 QS comes in what I'd call your de rigueur RTF heli box. Cardboard, with a polystyrene insert and a carrying handle, allowing you to use it to transport your toy around after you carefully pack it back in the box. That was not what I was doing right now though, as I was unpacking, ready to get charged up and run off down to the field. If the box is fairly run of the mill, then so are the contents.

As well as one 450 size heli, fully built and setup, you get a 3S 2200mAh LiPo battery, complete with Deans style connector, a simple balance charger (which will also charge a 2S pack), bind plug and small plastic screwdriver, and the instruction manual, which mainly covers spare part numbers and safety notices.

The transmitter is KDS's own K-7XII seven channel 2.4Ghz set and this is a comfortable, if slightly chunky affair with smooth but quite short sticks that I couldn't seem to adjust. It works well though and the menus are fairly intuitive too. I didn't play with any of the standard setup for my test flight, but it is setup as you would expect, with the Idle up switch adjusting the throttle and pitch curves and changing the gyro sensitivity to better suit 3D flying. A dual rates switch is set to knock the rates down to 60 per cent when switched on, but this can all be adjusted easily and quickly (I didn't even really need to read the manual to work it all out). As a safety feature, the transmitter will not transmit if you switch it on with the Idle up switch on, or the throttle stick set to anything but zero.

CONSTRUCTION AND SETUP

This section would normally cover how you setup your machine for flight, but luckily for you, everything is pre-setup from the factory, and has already been test flown. Experts may wish to check over the setup, but I found that the stock settings were just about perfect. The swash was level, and all the ball links were free, although they are not lubricated from the factory. KDS may think this is unnecessary, and I didn't lube them, but I do feel that this is something I might do in the future.

Onto the construction of the machine itself, and as mentioned earlier, it is based around a moulded plastic frame which has anchor points for all the main electrical components, as well as the tail boom and main-shaft. KDS do produce other models that are based around a

You get everything you need in the box, so you can be up and flying in no time



The transmitter is chunky and comfortable, if a little black!



A 3S 2200mAh LiPo battery is provided, along with compatible charger

dual deck carbon frame, and you could feasibly transform your QS into a more exotic model should you have the funds and inclination. The layout is generally pretty orthodox, with the battery mounted at an angle out front, out-runner motor below and the receiver and speed controller mounted low down, out of harm's way. KDS supply a piece of velcro strap to hold the battery in, but I chose to also mount it to the frame with a piece of self-adhesive velcro too to provide belt and braces security.

Three servos control the swash and are mounted in a 120 degree CCPM arrangement as per virtually every CP electric heli available. The tail servo is a little unusual being mounted down low behind the receiver rather than being slung down below the tail boom. I don't see any disadvantages of mounting it this way, and it does seem a little better

protected down there. Speaking of the tail, this is as you would expect, belt driven, with a thick aluminium boom containing the belt, which is further stiffened by two carbon rods running up from the bottom of the frame. A large dorsal fin protects the tail rotor from ground strikes, and the white plastic coordinates nicely with the chunky landing skids.

Moving back to the main body you'll find the head and main-shaft are nicely made and securely attached to the frame. The head is again all plastic with the exception of the aluminium top button and is of the flybarred design which is still more accessible for beginners in my opinion. Wooden 315mm blades are provided and these give a nice crisp response whilst encouraging a higher head-speed leading to more stability. Call me a magpie, but I rather like the metallic



It's a good looking heli, with narrow canopy and purposeful and sturdy plastic skids

style effect on the blade's coating too, and if you damage blades, these are very reasonably priced too as spares. I can confidently say that in my investigations of this heli, I was highly impressed with the thought that had gone into the design, and even more impressed with the quality and build.

The 450 size arena has definitely got some excellent quality products in it at the moment and this KDS is certainly one of them. After my comprehensive look round the machine, decided it was time to load up the transmitter with 8AAs and put the main flight battery on to charge in preparation for some fun down the field...

PRE-FLIGHT CHECKS

Before charging the main LiPo I thought it best to check the power level on my battery doctor unit. The reading was a little bit of a worry in my opinion as it showed a 0.2V difference between one cell and the other two (which were very close to each other). Rather than put the battery on the included charger, I connected it to my bench charger which reports individual cell voltages whilst charging.

After about an hour and a half charging, the pack came off, virtually in balance, whereby I then set it on a 3.4V discharge cycle followed by a balance charge. The pack was now in balance and ready to go. I'm sure that the included little balance charger would have brought the pack back into balance eventually, but I'd rather be safe with these kind of things. I'm sure my particular pack was just a one off anyway.

AT THE FIELD

So, with fully charged batteries and a lovely sunny day with just a gentle breeze, I set off to have a play. With the InnoVa set down and connected up, I put the throttle hold on and checked the servo travels and swash one last time. Everything looked fine so it was time to get airborne. As the rotors spun up I was surprised by the lack of shake through the fuselage - this is a very well balanced bird, and I was feeling confident about flight. I popped it up in the air, and knocked down the dual rates whilst my photographer got to work snapping. A very very stable hover ensued, and I was hardly having to correct the cyclic as Steph danced around the KDS snapping all the different angles in the air.

A few gentle circuits and some lazy-eights ensued as Steph then ran off to photo some object of wildlife, and I was feeling really comfortable flying. It does have a very locked in feel, and is easy to throw about, going just where you want at all times. Switch to Idle up and all of the sudden it takes on a different persona, being altogether harder and more direct than you'd imagine a plastic heli to be. I'm sure that my esteemed colleague Mr Jamie Cole and his peers would now be dying to bang into a series of tick-tocks, general tail-waggery and grass cutting



The plastic frame is a complex and stiff moulding that gives a solid mounting for all the major components



The head is plastic and features a fly-bar and 120 degree CCPM



The heading hold gyro is strong and fast responding and can be adjusted to your tastes



The tail gearbox and blades are again plastic



manoeuvres, and I'm sure he'd say its not a patch on his comp bird that cost him £umpteen. Actually, I'd like to challenge a hard 3D flyer to find something else for around two hundred quid that flies as well, and is docile enough to learn on, oh, and can be repaired for pocket money in the event of a spill.

As you can tell, I really was impressed by this little heli, and in fact have been back down the park flying it whenever I can, especially with this unseasonably warm Indian Summer we're having right now. So to go back to what was said in the intro, is it the good weather that is

reminding me what fun it is to fly outside, or this wonderful little 450 package? I think a bit of both actually. One slight thing that annoyed me was the five minute timer on the transmitter that counts down whenever throttle is applied.

At four minutes this starts beeping, and then every 15 seconds it starts beeping again! I wasn't prepared for this and worried it might have been low batteries and ended up nearly ditching the heli in a tree trying to work out what the heck was going on! At least I know now, and it can no doubt be turned off if you fiddle with the transmitter enough.

'I can confidently say that in my investigations of this heli, I was highly impressed with the thought that had gone into the design, and even more impressed with the quality and build...'



KDS' own outrunner brushless motor provides plenty of power yet runs cool

The tail servo is well tucked away in the frame rather than slung under the boom

The main gear features autorotation and provides drive to the tail via a belt

Side on you can see the elegant and thoughtful design of this helicopter

THE VERDICT...

That you could buy an RTF, brushless, 2.4Ghz computer transmitter equipped CP helicopter for a gnat's over £200 would have been a revelation until quite recently. That you can buy a really good one for that kind of money is a miracle in my opinion. Not only is the KDS Innova 450 QS a very compelling product, and excellent value, but it is very well thought out and manufactured too. Some of these kind of helis were until recently good on paper, but actually once you got to know them, had a fair few flaws too. This is not the place to point fingers and name names, but some seemingly good products we've seen in this sector have disappointed a little in the air, or in terms of robustness in the field. Not so this model.

The 450 QS is a complete product and this is reflected in how well flies too. The supplied LiPo battery was a small blot on its copybook, but I guess this could happen to any heli battery really, they probably all come out of the same factory anyway! ←

Tom Stacey



Stable and confidence inspiring, this is a delightful machine to fly

Tech Spec...



KDS Innova 450 QS

Length:	650mm
Height:	230mm
Rotor Diameter:	715mm
Weight:	800g
Battery:	2200mAh 11.1V Li-Po
RRP:	£229.99 - Complete RTF helicopter
	£169.99 - Plug and play (no Tx, Rx, batt or chg)

Available from: All good model shops
 UK distributor: Century UK
 Tel: 01795 437056
 Web: www.centuryuk.com

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Looks great doesn't it!

