



Cermark 1M Katana

Simon Wright tries out a sport-scale aerobatic model with 3-D pretensions

The range of small aerobatic models of sport-scale design increases every month and this model from CML Distribution follows the now accepted norm of a lightweight, laser-cut, built-up balsa and ply ARTF combined with a brushless outrunner and LiPo battery to provide a 3-D capable sport-scale aerobat. The Katana is one of CML's 1M range that also includes an Edge 540 and Yak 54.

When the first laser-cut models arrived on the scene some years ago, we reviewers were stunned by the accuracy and detail of the cutting. Building a kit from these exquisitely cut parts was a pleasure and we were prepared to pay a premium for the technology. A few years down the line this high-tech manufacturing procedure is commonplace and we now see precision cut parts in almost all ARTF models. The fact that these built and covered models are cheaper than the kits we used to buy seems to escape many people, for me it is a constant source of amazement!

With a retail price of £79.95 the Cermark CML Katana comes in standard ARTF format with most of the building done and a minimal parts count.

The one-piece wing has a span of (yes, you guessed it) 1 m, that's just over 39" in a civilised tongue and is of built-up rib and

spar construction with a D-box leading edge. Its top surfaces are covered in a tri-tone blue colour scheme with the lower surfaces in black and white. The ailerons are also built-up and these follow the wing section with ample chamfers to allow 3-D control movements. The hinges are fitted but not glued in position.

The fuselage is a masterpiece in laser-cut precision with all the formers and bearers

slotting or keying in position. Balsa sheet and stringers are used to form the front and rear decks and with balsa used for the fuselage sides too. Wood is pared down to a minimum on all the ply formers to keep down the weight of this small but bulky fuselage. The motor mounting box is supplied loose and is of slide-in design.

A full hardware pack is supplied which includes undercarriage, wheels, horns, self-



Laid out for the camera the kit is very complete





The CML motor pack contains an APC 11" x 5.5" E-prop, adaptors, motor, mount connectors and 30 A ESC



CML now distribute suitable servos and LiPo batteries. The 1500 3S pack is 25C (47.5 A) rated!

adhesive hook and loop material together with all the control linkages. The cowl, undercarriage fairing, small wheel spats and smoked canopy are from vacuum formed plastic.

The tail surfaces are of built-up construction and continue the impressive colour scheme with its combination of multi-tone and metallic blue sweeps and sections of checkerboard.

An A4 size, 8-page colour photo-illustrated instruction book details assembly for the range of models in eight major steps.

Assembly

To complete the model you will need four 9 g servos, four extension leads, a suitable receiver, 200 W+ brushless motor with matching ESC and prop together with a suitably sized 3-cell LiPo pack of around 1500 to 2000 mAh capacity.

It is good to see that CML Distribution offers a range of products selected for their 1M range, I was grateful to receive the requisite parts.

The CML motor pack includes a CEM 2820-1020 brushless outrunner motor with

APC 11" x 5.5" E-prop, adaptors and a back plate mount. A Cermark ESC-30BL (30 A) BEC speed controller with connectors completes the package. Plugged in to my test rig this package provides 215 W of power and static thrust of 1050 g.

Building work is limited to fitting the wing fairing and tail surfaces with a dab of epoxy and fixing the hairy hinges and control surfaces in place using a few drops of thin cyano. Just remember to fit the elevator joiner before finally gluing the elevators.

The motor fits onto a slide in motor mount, its position being adjusted to obtain the required prop driver to firewall dimension. Some balsa sheet and fillet is supplied to stiffen up and strengthen the fixing.



Engine box follows I/C pattern and is built up from ply and balsa. Unit slides into laser-cut slots in fuselage

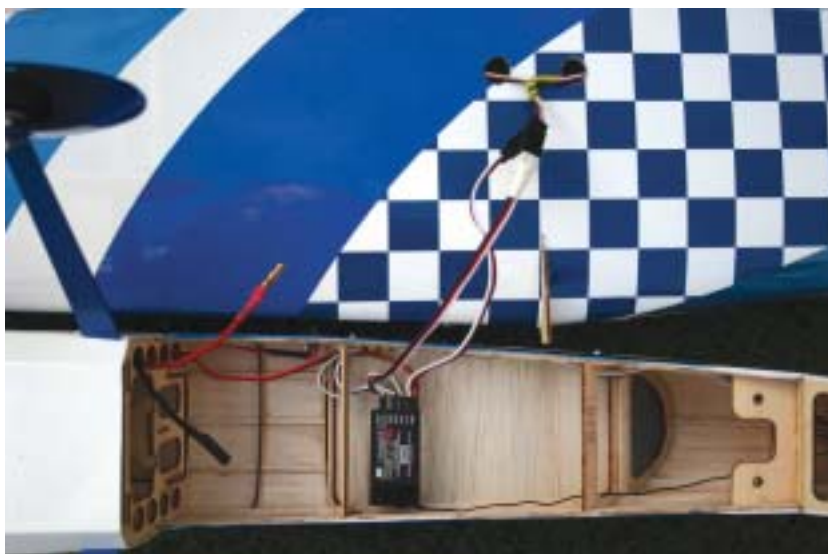
No centreline is marked on the firewall so the motor shaft must be centred on the pre-cut hole.

The aluminium undercarriage fixes to the fuselage with two steel M3 screws, I would prefer to see nylon used, better to replace snapped bolts than rebuild the U/C fixing plate. Vac formed spats are supplied to fair in the 30 mm main wheels, they look nice but are of no use on any grass field and with a 5 mm



Hardware pack uses neat micro control horns and short wire linkages. Clamp connectors were not used on review model





Belly fairing glues to wing, it is bared to the minimum for light weight and incorporates battery access hatch

ground clearance of limited use on all but the smoothest concrete runways.

The tail gear is a fixed non-steering assembly screwed onto a plate in the tail. The wheel is a tiny item of 13 mm diameter and is held in place with a short piece of tubing.

All servos are positioned local to the control surface with ply backing plates to receive the fixing screws. The covering needs removing before installation and the apertures need opening out slightly to suit the Ultrafly ST9 servos.

Solid wire pushrods are supplied; these have a formed Z-bend at one end and an adjustment vee to open/close to fine tune trimming. The instructions state that Z-bends should be used onto the servo but clamp connectors are supplied to adjust the linkages. I formed Z-bends as instructed and put the clamp connectors in my spares box.

With small self-tapping screws used to

secure the cowl, canopy and undercarriage covers we suddenly find the assembly job to be complete. Addition of a JR Synthesised PCM receiver and a couple of extension leads saw the model ready for balancing. Weight excluding battery was 695 g, that's 70 g more than the 625 g minimum flying weight quoted in the instructions.

There is no mention of the battery location in the manual but it is pretty obvious that it goes through the battery hatch into the void between the wing and its fairing. Velcro is supplied to locate the battery but I added a rubber band strap to retain the battery during high-G manoeuvres.

The C of G position is listed as being at the main spar and this can easily be achieved by moving the battery fore or aft.

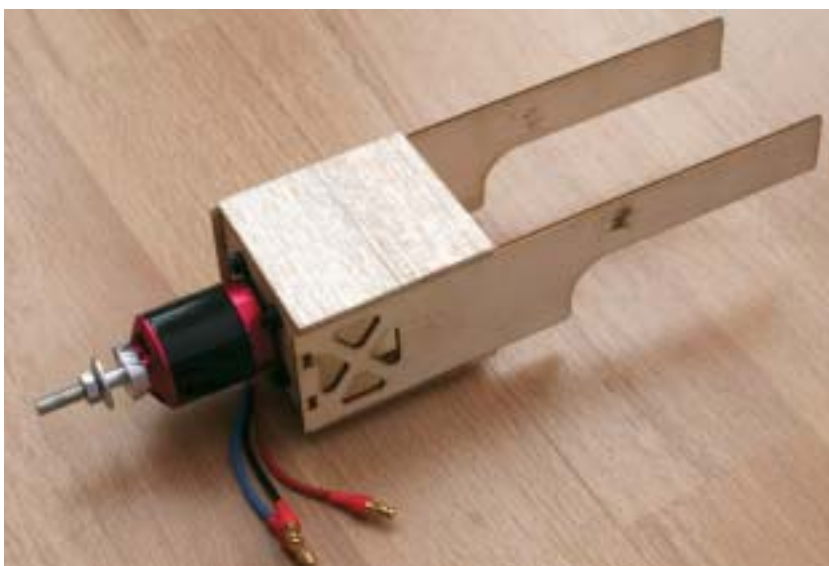
With control movements set as instructed the Katana was programmed into my transmitter and readied for its first flight.



Airframe is built up from expertly cut material with good fits and glue joints



Vac formed spat covers 30 mm lightweight foam wheel



Motor fitted onto engine box ready for installation



Candidate for smallest tailwheel ever?





Pretty little model innit?

Flying

With the wettest summer on record preventing any chance of a quick test flight, the Cermark Katana languished on the workbench for what seemed an eternity. With editorial deadlines on top of us, the test flight was snatched one late evening after work.

The weather conditions were almost perfect, with a gentle breeze and clear skies. Unfortunately the sun was falling and light failing so poor Heather had a major job on her hands to try to get some photographs.

I did not think that the tiny wheels and spats would allow a R.O.G but the Katana had ample reserves of power and was quickly airborne and climbing out steeply. The model climbed to a safe height for trimming out and felt rather skittish on the high rate controls. Low rates were flicked in and the Katana (or pilot?) was noticeably smoother in flight but seemed to be suffering from a rearward balance point. A few circuits, loops, rolls and stall turns were flown by the camera before a landing was called and it handled these simple manoeuvres with ease.

With the battery moved forward half an inch the Katana was airborne again. The skittishness was noticeably reduced on high rates but the balance still felt slightly

rearward. The Katana performs a nice harrier and with its 45 degree movement, some incredibly fast snaps and spins. The 1020 motor provided sufficient power for a hover but I feel it could handle a slightly bigger prop to give more power and thrust.

As expected, the spats with their tiny ground clearance have parted company with the undercarriage; they did however last longer than expected on our grass strip. Less expected was the undercarriage plate pulling out, it appeared to have popped out of its locating formers and was quickly repaired by clicking in place with some epoxy.

Subsequent flights have seen the C of G position moved forward again with the prop size increased to an 11" x 7" and these changes have brought the performance of the Katana in line with my expectations. It is now able to fly smooth and fast aerobatics or with the flick of the rate switches goes into crazy 3-D mode.



Q&EFI Specification

Model Information

Name: Katana Electric ARTF – 1M Series
Manufacturer: Cermark
Tel: 01527 575349
Email: sales@cmldistribution.co.uk
Part Number: CER-A125
Price: £79.99 RRP

R/C Functions

- 1 Rudder
- 2 Elevator
- 3 Ailerons
- 4 Throttle

Model Specifications

Wingspan: 39"
Length: 35"
Wing Area: 314 sq. in
Flying Weight: 23 to 28 oz (625 to 795 g)

Likes

Looks
Colour scheme
Performance

Dislikes

Undercarriage

Concluding

These 1M models fill the gap between shokkies and full size sports models and provide the modeller with a good-looking, easy-building, sport-scale, aerobatic model at a reasonable price. The small size keeps equipment costs low while allowing all-weather performance like a larger model. With flying performance ranging between a gentle park flyer at low throttle, smooth all-weather aerobat at high throttle or 3-D tool for throttle blippers the CML Katana is a useful and welcome addition to the Hangar.

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