

Radio Control
RotorWorld





GAUI GETS HELP FROM A CO-PILOT

SUBJECT: Gaiui 425 with FMA Co-Pilot 2

PHOTO: Richard Budd

PILOT: Ian Wallace

LOCATION: Blackburn & District Model Club

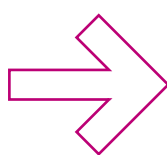
CAMERA: Nikon D80/Nikkor 135-300mm lens

Brilliant

BUDGET BUY



I SEEM TO HAVE BEEN GAUI-FIED RECENTLY. I CAN'T SAY THAT THIS BOTHERS ME AS I HAVE SO FAR FOUND GAUI MODELS TO BE VERY GOOD QUALITY AND GREAT FUN TO FLY, HOWEVER WITH THE HURRICANE 425 ONLY COSTING £59.55 - YES THAT IS CORRECT, I HAVEN'T MADE A TYPO, I CAN'T SAY THAT I WAS EXPECTING A HELICOPTER THAT WOULD EXCITE ME. BY RICHARD BUDD



Now there's no escaping the fact that this is a budget kit, so I was not expecting much in the way of luxury or quality. The box is pretty plain and simple with basic pictures and graphics. Opening the box, and the first thing you see is a blow moulded canopy that requires cutting out and gluing together. The last time I had to do something like that was with a Schluter Mini-Boy back in the 80s. I suppose that I have been spoilt over the last few years with pre-painted

glass fibre jobs, however these frequently cost more than this whole kit, so I carried on looking through the box. I now had a hard time remembering that this is a budget machine as there was no other sign of blatant cost saving. The plastic main frames seemed good quality and there were a surprising amount of ball races in the kit.

MODEL OVERVIEW

So what is the Gaiui 425? Well Gaiui size their models using the blade size, so this helicopter uses the same size blades as the T-Rex 500 (Align use motor size on the electrics). This

does mean that there are a lot of suitable blades available, which is useful as no blades are included in the kit, although a blade caddy is. Also not included is the motor and speed controller. This may seem like a major omission for those who are used to buying a complete package, but I actually see this as a positive as that means that I get to choose what equipment I use, rather than pay extra in the kit and then pay even more for the motor of my choosing! I was originally going to use the old 1700KV motor that I choose not to use in my T-Rex and couple that to a 13 tooth pinion,

however after a quick conversation with the distributors, I ended up deciding on the Gaiui items. It would seem that I am not the only one using this combination as the first batch had already been sold!

INITIAL ASSEMBLY

Just as I settled down with the 17-page A4 instruction booklet, my daughter came into my workshop and announced that she wanted to build this helicopter. As I struggle to say 'no' to blondes, what choice did I have! So with little more than some Lego building with her younger brother and an Airfix kit



The Gaiui 425 Basic kit comes in quite a plain looking package



The 1400W/KV1100 Gaiui brushless motor and 50A speed controller



The main frames are moulded from plastic which keeps the cost down



So simple a nine-year-old can build it, but she has had plenty of training



Main frames assembled and undercarriage skids attached and secured using M3 grub screws



The tail is quite straight forward and features a simple belt driven design



The 425 is supplied with a blow moulded canopy that requires cutting out and gluing together

under her belt, she sat down at my workbench and studied the instructions. With a little help from dad to ensure that not too much thread-lock was applied, she then set about building the main frames. I did ask if she wanted to write up the review, but she said she was only nine and thought that as her typing and spelling are better than mine, she didn't want to embarrass me!

The instructions showed that they are simple enough for a child to follow and after fitting the bearings into the frames for the mainshaft, two-stage transmission, tail drive and elevator cradle, the two side frames are joined with a total of 22 bolts and a self tapping screw. The undercarriage cross struts can now be fitted along with the bottom canopy retainer. The skids can then be added and secured with M3 grub screws. The two eCCPM bellcranks can now be fitted with the supplied balls and bearings and along with the elevator cradle which also acts as the washplate guide can now be fitted. The two-stage transmission can now be fitted. Although the supplied main gear is 50 tooth, 42 - 60 tooth gears are available to alter the gear ratio. Interestingly the auto bearing is not fitted to the main gear, but on the secondary gear which needs fitting the correct way in order to provide a clockwise drive on the head. The instructions show that writing side of the bearing should point down. I had to assist in adding the two washers against the bearings before adding the secondary gear, and the instruction hint of using a dab of grease to retain the washers in

place proved to be just the job. The tail drive pinion system can now be added.

I had to assist in the next stage which was mounting the motor. The first job was to mount the motor onto the supplied plate in such a way as the motor can be moved to provide the correct gear mesh. Then the pinion is fitted so that the teeth start 7mm from the plate. The motor plate which also incorporates a bearing for the counter gear can now be temporary fitted into the frame recess and motor moved to ensure correct gear mesh. The plate then has to be removed (without moving the motor) so that the motor retaining screws can be fully tightened. The plate can now be refitted to the frame and secured with four x M3 bolts.

HEAD AND TAIL

The head comes ready assembled. Although there is a lot of plastic present, the head block is metal and the whole head is fully ball raced and the main grips are also thrust raced. The stepped washers on the spindle nuts allow for a choice of three damper settings. However as the screws on the head all seemed well thread-locked, I left everything as set which gave a medium damping setting. The fitting of the ballraced flybar cradle, flybar and the 13.4g paddles was pretty standard. The washout system, which again is fully ball raced was also pre-built and it was just a matter of fitting the parts to the 8mm hollow main shaft.

The tail is also quite straight forward with a simple belt driven

design. A plastic pulley is mounted to the 5mm tail shaft, which is then fitted with the drive belt and sandwiched between two plastic tail case halves which positively lock onto the 21mm alloy tail boom. An aluminium guide wheel is then added to ensure that the toothed tail belt remains in full contact with the pulley and after ensuring that the belt is correctly twisted through 90 degrees, the boom is slid into the mainframes and belt slid over the front pulley. Tail belt tension is then controlled by boom position in the main frames. The Tail pitch slider was already made and just needed pushing onto the tail shaft. The moulded tail grips are then bolted to the twin ball races on the hub and the hub is secured to the shaft with two M3 grub screws. The tail pitch lever, which again is double ball raced can now be added along with the plastic vertical fin.

The boom features a single pushrod support and a plastic horizontal fin mount which also acts as the fixing point for tail braces. The tail pushrod is a single pre-bent wire threaded at both ends to accept the ball links. Nothing is fancy, but the result is a very friction free positive tail set-up which is finished by adding the supplied 70mm plastic tail blades.

To complete the construction of the airframe, a small carbon frameset is fitted to the lower part of the battery tray to allow a battery to be mounted above and below the battery tray. These parts are glued together and fastened to the frames with a pair of self tapping screws.

CANOPY CONSTRUCTION

Now the bit I was not looking forward to... the canopy! I used some modelling scissors to cut out the two halves along the prescribed line and after cleaning the edges with some glass paper on a flat surface, the two halves were initially joined together with tape. I then run some airfix glue around the inside of the canopy join and once set, removed the tape from the outside and added some more glue. After a final trimming session and the fitting of the canopy grommets, the screen was painted with some poster paint and the supplied graphics added. I took the precaution of adding some cooling holes to assist the motor. The result is best described as adequate! I could of course have invested in a pre-painted glass canopy, but that would have cost third of the kit price and would have defeated the point of this kit.

RADIO INSTALLATION

I managed to get the helicopter back to carry out the radio installation. Now in keeping with the budget helicopter theme, I had a look around my workshop and simply fitted what I had lying around spare. The Gauji Hurricane 425 can accept standard size servos as well as the mini type servos (for which carbon adaptor plates are supplied with the kit), which is a good job as I had three x Spektrum 821 servos sat in a draw along with an old JR 8700 Tail servo and a CSM 560 V4 micro gyro. The servos were simply screwed into the frames and the balls mounted to the servo discs as



The head comes ready assembled and features a mixture of plastic and metal parts



The completed Gauji 425 looks quite neat and certainly belays its budget price



Ready for the first test flight with all radio and LiPo battery packs neatly installed



The speed controller is fitted low down and in between the plastic main frames



Close-up showing the Gaiu 1400W/KV1100 brushless motor installed on top of the airframe



The tail rotor is belt driven and care must be taken when installing the belt to ensure correct operation

detailed in the instructions. There are not a lot of linkages to be made, just the push-pull linkages to the eCCPM servos and a single set of links on the head - the rest are all fixed links. Although there is a mounting plate under the canopy for the speed controller, the instructions advise you to not to fit it there, instead I mounted it using Quick UK double-sided foam tape, to the bottom shelf near the canopy. This allowed the Spektrum AR7000 Rx to be sat on the rear of the bottom shelf allowing a neat installation and tidy receiver aerial placement. The CSM gyro was placed on the mount just aft of the main shaft.

I had to make a series connector for the two x 3S 2200 Platinum Revolectrix LiPo's that I usually use on my T-Rex 450 and the tidy installation was slightly spoiled with the lack of room available around the battery tray. Setting up showed that the

instructions were pretty much spot on with only a couple of turns on the links to the servos required, which is entirely down to my chosen servo setup. A check on the pitch range showed +/- 11 degrees available using 60% swash mix on my DX7, with more available if I wanted to fit some larger servos arms.

The weight of the model is 1.45kg without blades or batteries. I added some RJX 425mm blades which weighed in at 123g and two Revo Platinum 2200 3S LiPos at 386g. The end result was about 100g heavier than the instructions suggest, but then again, I haven't exactly used the lightest equipment around. The C of G was right on the main shaft.

FLIGHT TEST

First flights are normally taken in my back garden, but this time I went straight to the flying field. After everyone at the field had a good

look around the model for which there were many compliments, well except for the canopy! I connected the batteries and carried out range tests/pre-flight checks, the model was carried out to flight pad. Advancing the throttle showed that the speed controller had a nice slow start and after a few seconds, the rpm was up to 2,200rpm (75% on throttle curve). A little more pitch saw the heli lift off into a gentle hover with no vibrations and no tracking adjustments required. The trim was pretty much spot on and the controls felt nicely harmonised. The gyro gain was set to 80% which seemed just about right. Following a quick trim on the gyro, a quick stab of the tail showed that the stops were perfect and the pirouette rate very consistent in the wind.

Moving onto lazy eights, the helicopter felt very stable and not in the slightest bit twitchy. Now I

am usually quite a conservative (note the small 'c') flyer, however, my confidence in this machine was growing rapidly. Idle up was selected (90% on the throttle curve) and the head speed rose to 2,800rpm. Quick application of 11 degrees pitch showed a more than adequate climb and moving onto fast forward flight showed the helicopter remained smooth and stable. Stall turns proved a delight but the real surprise came in the loop. My first attempt must have been close to 100ft diameter and the helicopter came out pointing in exactly in the same direction it entered without and cyclic correction. I repeated this doing consecutive loops, which showed that unlike some of the competition, the phasing of this helicopter was spot on! This was later confirmed with hovering rolls and flips. Inverted hover showed equal stability to the



The helicopter performed well during flight tests and felt very stable and not in the slightest bit twitchy



When assembled and finished the Gaui 425 looks like a much more expensive model



Considering the canopy had to be cut out by hand and glued together it doesn't look too bad



At under £60 the Gaui 425 Basic kit has to be considered a real performance model bargain

right side up and did not require any trim change.

Flight time on the Revolectric 2200 Platinum packs were three and a half minutes of 3D flight in Idle up, or five minutes of gentle flying in normal mode. I have since returned to the ethos of the machine and have bought some 3S 3000mAh 35C LiPo's off eBay for less than £20. I doubt that these will last more than 30 cycles, but I thought it would be worth a try. Flight times improved by around 30 seconds with no noticeable change in performance.

I have to admit that I was having too much fun to think about trying

autos, so as I type out this review, I will add this to the things that must be done. I did however try to find the limits of the tail, and in Idle up managed to fly sideways into wind at full speed without the tail showing any signs of breaking away. This would show that the supplied plastic tail blades are perfectly up to the job, however there is a note in the instructions that if flying with a head speed of less than 2,600 option 79mm tail blades are available.

THE VERDICT

Now I will admit that I was not expecting too much from such a

cheap helicopter, but I will eat a little humble pie. Whilst I still think that the canopy is a pain in the rear end, the helicopter itself is a revelation. This helicopter really is nice to fly and can be set up to suit a beginner or an expert. As my daughter proved, construction is straight forward and I recon that outside of a review a could probably take this helicopter from box to flying in less than three hours and half of that time would be working on the canopy! I like the fact that I have now capped the cost of a crash to less than £60 less blades and that spare parts are

also cheap. I am so impressed that I am planning on buying another and having it sat there to transfer the radio and power system from one model to the other in the event of the inevitable crash. No doubt there will be arguments between my son and daughter as to who is going to build this one! There are various versions of this helicopter available all the way up to carbon framed torque driven flybarless, but personally against my usual habits, I actually like this cheap basic version which brings fun back into the hobby. 📧

Richard Budd

TECH SPEC

Gaui 425 Basic kit

PRODUCT TYPE:	400-size electric 3D helicopter
OVERALL LENGTH:	900mm (inc cabin & canopy)
MAIN ROTOR DIA:	965mm
MAIN BLADE LENGTH:	425mm
TAIL ROTOR DIA:	217mm
FLYBAR PADDLE:	78 x 42 x 6mm
TAIL BLADE LENGTH:	70mm
OVERALL HEIGHT:	310mm
OVERALL WIDTH:	80mm
MOTOR:	1400W/kv1100 external brushless motor (not inc)
ESC:	50A/25V ESC with Heat Radiator (not included)
TOTAL WEIGHT:	1370g (equipped with Blades and all electronic gears except Battery).
RRP:	£59.95

MANUFACTURER: TSH Gaui Hobby Corporation
WEB: www.gaui.com.tw

UK DISTRIBUTOR: King Cobra Distribution
TEL: 01706 260502
WEB: www.kingcobra.co.uk

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This helicopter really is nice to fly and can be set up to suit a beginner or an expert