

## MaT Newsletter Nr. 2 - May 2016

The flying season is starting – it was here for the past couple of weeks but then winter wanted to let us know he is still around! Now warm again! For my friend James Wang in the USA, the flying season never ends! Sunny, Warm, Hot, Cold, Windy, Rain or Snow – James will fly every day! Which makes him the perfect test pilot, oh yes I forgot to say that James is an excellent Pilot and his day job is being an R&D Manager for a Major Full Scale Helicopter company.

The latest new from James' test program is: James beginning a true engineer and test pilot he does things like go out and practices recovery autorotation's from every possible altitude and attitude that he can put his helicopter into. A few days ago he did not have enough energy left so he came down main rotor first and snapped the main rotor spindle his helicopter suffered little other damage and even though our servos were subject to high forces form connections to swashplate servo gears were undamaged. James quickly fixed his heli and then continued with his autorotation recovery training without further incident. James has been testing our servos for a few years without any problems and he likes them. His comment is performance is great but try to give them a little more Bling Look in the Future, stay tuned James – But Performance and Reliability will always come first.

As a test pilot James is like another test pilot I know of, Chuck Yeager, now that's a big statement and by it I mean that James is always testing the limits of his aircraft in a very controlled fashion, things that many pilots would not think of trying or if they did think of it never tried that I know of. The Chuck Yeager story that I have in mind is when Chuck Yeager started to fly his aircraft lower and lower to the dry lake bed, carefully pushing the stick forward little by little until he could Feel the pressure building up between his wings and the ground – at last the stick was pushed all the way forward and his jet could not push any lower due to the pressure between wings and the ground, something no one would ask a test pilot to try, but Yeager did it on his own! I am sure that Yeager had some well-formed thoughts as he started this little experiment but he took great care in doing the experiment. He had lots of experience to back him up! There are of course

many very good pilots in the world but Chuck Yeager will always be unique – the same for James Wang.



## Helicopter SFOUR

We are working through all of our SFour Information, parts and kits to plan our next moves. We were given almost no information on the previous suppliers for the SFour so it will take a little time to determine what we will need to do for the SFour and follow on SFour Products.

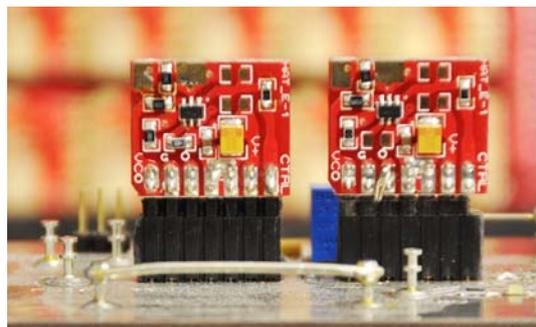
SFour V2 planning is in progress, with some added modifications since Herr Duttenhofer first designed it.

Also I am working on a New Manual for the SFour and all of its future variants. Much greater detail in the written text with more drawings and added photos. More importantly there will be an online “Living Version” with videos for key assembly steps and 3D PDFs.

## SERVOS



## ELECTRONICS



A shipment of servos from our manufacturer in Taiwan have arrived. Our servos offer what other brands only offer for their top of the line servos, Brushless DC Motors are standard and contactless feedback on all but one servo. Now we offer them at a standard reduced price rather having sales.

High Speed with High Torque, Contactless Feedback, High Strength Metal Gears, High Voltage operation, High Reliability and long life, 12-bit resolution, Brushless Motor, Low Backlash Gears - all at a lower price than anything in their class of performance. [Our January 2016 Rotor Review of our servos is on our website now.](#) Our Servos give high performance in Helicopters, Conventional Airplanes, Turbine Aircraft, Cars and Boats. In addition all characteristics for demanding Robotics applications.

**Take a look at [our shop](#) and you will see some good price reductions on our servos and our SFour Helicopter Kits.** On the servos you will see my thinking on pricing for servos, there is not a big difference in price among our various servo models.

I have a base line cost that only needs to change when something special needs to be added or changed, different motors mostly, Now you can choose a servo based on its performance characteristics matching your real needs and not on price.

New prototyping PCBs are ready for testing :

- a Dual TimerBlox board, LTC6992-x with OP AMP (S5 footprint)
- LTC6992-x with OP AMP (S8 footprint),
- Single OP AMP board (S5 footprint),
- Single OP AMP board ( S8 footprint ),
- Simple Power Distribution Board for 8 servos plus a test channel, and
- a single channel power supply isolator (Y-Cable and board) to use with Microcomputer boards like the Arduino where you need to keep two supplies separate, Arduino controlling high current and/or high voltage servos - these share a common ground and the V+ sides are separate.

Links to show the schematic and information for each Prototyping board will be added in the web store. I have spent some time writing an Arduino Servo test program, a collection of servo related functions that can be used to build your own servo control programs. In a little while I will publish these in one form or another, Gunther Winkle is trying out the functions now.

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