**An introduction to "My Way"**

At the beginning of the electrification of our F2B models it was soon discovered that the gyro force of reverse running propellers, so-called "pushers", brings more line pull when flying outside loops and in outside corners. This is particularly helpful in the left square of the square eight, in the upper loop of the vertical eight and in corners 2 and 3 of the hourglass. Therefore, many converted IC models were then fitted with "pusher" pressure propellers. As a result the better line pull was confirmed in outside manoeuvres, but in horizontal and inverted flight the problem appeared that it became difficult to exactly maintain flight altitude. So called "e-hunting" caused the aircraft to suddenly leave altitude without external influences. Changes in trim and/or aerodynamic modifications did not bring any improvement. Only the switch back to normal direction of rotation, i.e. to conventional "tractor" propellers, has eliminated "e-hunting".

In my opinion, the reasons for “e-hunting” are the following:

Conventional F2B models are designed for operation with tractor propellers where the gyro force of the propeller in horizontal flight results in a nose-up moment. This is compensated by arranging the thrust axis of the motor above the (drag-) centre of the wing and/or by inclining the motor downwards (approx. 1-2°). The nose-down moment from landing gear drag, too, is compensated by having the motor above the wing.

Together with a positive angle of attack (approx. +1°) of the stabilizer, an approximate equilibrium of forces around the pitch axis is achieved in horizontal flight and thus altitude holding stability is achieved.

If, to get more line tension in outsides, the direction of rotation of the drive train is reversed in a conventional model, the reversed gyro force of the propeller causes a downward force in horizontal flight. As a result, the original compensation measures no longer have a compensatory effect, but an intensifying effect and achieving sufficient stability in horizontal or inverted flight becomes almost impossible.

This means that conventional models should be flown with tractor propellers and that when operating with pusher propellers, the design of the model must be adapted to the inversion of the direction of the gyro forces.

In order to make use of the advantages of "pusher" operations described above and also to get safe line pull immediately when unassisted starting the take-off run on a hard surface runway, I have built three models (Symmetria, Fiat C-29 and My Way) in such a way that the inverse gyro forces of the drive train are approximately balanced. When calculating the forces and dimensioning the compensation measures, I could count on the competent help of our F2B friend Wolfgang Nieuwkamp. Without his indispensable support it would not have been possible to build several perfectly functioning models right away.

The "pusher" compensation measures in My Way are these:

Compensation of the nose-down gyro force in horizontal flight: motor thrust axis +2° upwards.

Compensation of nose-in gyro force in inner loops: rudder coupled to elevator. Outward deflection with elevator upwards.

Compensation of the landing gear drag moment: In-line arrangement and stabilizer -1°down.

My Way and its predecessors fly sufficiently agile, stable, accurate and symmetrical. All of them show no tendency to "e-hunting". If built very accurate with selected woods and adherence to the target weight of less than 1,850 grams, as well as when set up according to the data sheet, My Way is a competitive F2B model.

**Motor**

AXI 2826/12 Gold Line V2 Order number: 182612V2

RPM per Volt: 760

Max. Power: 655 Watt

Shaft: 5 mm

Weight: 177 grams

Recommended installation: Front mounting

Model Motors s.r.o.

Occruzni 1144

500 03 Hradec Kralove

Czech Republic

https://www.modelmotors.cz/product/detail/396/

**Speed Controller**

Phoenix Edge Lite 75 Amp Product #: 010-0112-00

Max. Voltage: 33.6V (8S)

Max. Current: 75 A

5 volt power supply for timer (BEC): programmable

Functions: Freely programmable, incl. bondage program for constant speed with brake

Data recording in flight: Freely programmable

Weight: 82 grams (with motor cables shortened by 50 mm)

http://www.castlecreations.com/en/phoenix-edge-lite/phoenix-edge-lite-75-esc-010-0112-00

**Programming interface to Windows PC**

Castle Link V3 USP Programming Kit: Product #: 011-0119-00

http://www.castlecreations.com/en/castle-link-v3-usb-programming-kit-011-0119-00

Castle Creations, Inc.

540 North Rogers Road

Olathe, Kansas 66062

USA

http://home.castlecreations.com/

**Timer**:

Hubin FM-9 with remote switch

**FM-9 Programmer**

Will Hubin

719 Cuyahoga St.

Kent,OH 4240

USA

[whubin@kent.edu](mailto:whubin@kent.edu)

**Pusher Propeller**

**APC** Thin Electric Pusher 13 x 5.5 EP Product Code LP 13055EP

<https://www.apcprop.com/product/13x5-5ep/>

**Fiala Wood**

2-blade electro propeller 13 x 6 E3 left turning (Pusher)

**Fiala Prop s.r.o,**Vysoká 56  
756 41 Lešná,

Tschechische Republik

<http://vrtule-fiala.cz/en/electro-e3-propellers/2-blade-electro-propeller-size-12-81.html>

**Spinner 2 in**

TTE-2052 - B - T   2 in Ultimate 2 Blade Turbo Cool Spinner

Pusher slot ““ C ““  for APC thin electric pusher 13 x 5.5 EP, Product Code LP13055EP  (Pusher prop reverse rotation, control line). Backplate reamed 7/16”

<http://www.truturn.com/cgi-bin/store/agora.cgi?p_id=tte2025.13&ppinc=spinners130&exact_match=on>

**Adapter for AXI 2826/12**

Electric motor adapter TTE-0516-050-A  5 mm Collet to 5/16-24 UNF Shaft Adapter Kit

<http://www.truturn.com/cgi-bin/store/agora.cgi?p_id=tte0516050a:33&ppinc=adapt&exact_match=on>

Romco Manufacturing, Inc.

100 West 1st.Street

Deer Parrk, Texas 77536

USA

<http://www.truturn.com/index.html>

**Battery**

Fullymax LiPo 2600mAh 5s1p 80c Artikel 11514

<http://www.leomotion.com/shop/USER_ARTIKEL_HANDLING_AUFRUF.php?Kategorie_ID=1095&Ziel_ID=8409>

Dimensions: 37 x 39 x 126 mm

Weight: 372 Gr.

Leomotion GmbH

Jakobstutzstrasse 46

8335 Hittnau

Schweiz

<http://www.leomotion.com/>

**Connectors**:

Anti-spark: <http://www.jetimodel.com/de/katalog/Zubehor/Stecker/@produkt/Anti-Spark-4-0mm/>

Peter Germann, 9. April 2018