FEDERATION AERONAUTIQUE INTERNATIONALE
AEROMODELLING COMMISSION (CIAM) - PROPOSAL FORM

Hard copy proposals are no longer necessary.

Submit the proposal via the automatic submission process using the following web address copied into your web browser:

http://www.fai.org/ciam-documents/31653-submission-of-proposals

Date: **10.10.2020**

Proposal submitted by: **F3CN Subcommittee**

For proposals from Subcommittees: Voting Numbers Required:

Overall Votes Cast: **13** For: **13** Against: **0**

Sporting Code Volume: **Section 4 Volume F3**

Heading of section: **Radio Control Model Helicopters**

Class: **F3N**

Number & heading of the paragraph: Annex 5F.1 F3N Set Manoeuvre Descriptions

Page number if appropriate: **28**

This proposal is a:

Rule Change		Safety		Noise		Other	X
Clarific-ation	X						

mark the boxes with ✘ as appropriate

Type the instruction in the space below:

Rewrite manoeuvre 1.5 "Inverted horizontal eight".
Rewrite manoeuvre 1.9 „360°-turn with roll".
Rewrite manoeuvre 1.11 „Spike".
Rewrite manoeuvre 1.12 „Inverted backwards horizontal eight".
Rewrite manoeuvre 1.16 „Tumbling Circuit".
Rewrite manoeuvre 1.17 „Triple pirouetting flip".
Rewrite manoeuvre 1.18 „Cuban eight backwards".
Rewrite manoeuvre 1.19 „Pirouetting loop".
Rewrite manoeuvre 1.20 „Backward rolling circle".
Rewrite manoeuvre 1.21 „Waltz".
Rewrite manoeuvre 1.22 „Double 4-point Tic-toc".
Rewrite manoeuvre 1.23 „Pirouetting funnel".
Rewrite manoeuvre 1.24 „Four point tic-toc reversal".
Rewrite manoeuvre 1.25 „Pirouetting globe".
Rewrite manoeuvre 1.26 „Duus Iglo".
Rewrite manoeuvre 1.27 „Rolling Circle Tail Reversal".
Rewrite manoeuvre 1.28 "Funnel with half rolls".
Rewrite manoeuvre 1.29 „Pirorainbow X reversal".
Rewrite manoeuvre 1.30 "Vertical Tic Toc Eight".

F3N Set Manoeuvre Descriptions

Type the text changes in the space below *(show deletions as ~~strike-through~~ and additions as* **<u>bold underlined</u>***):*

1.5 Inverted horizontal eight K=6.0
MA enters in inverted forward flight parallel to the judges' line, performs a 90°-turn to a straight flight above the centreline and then performs a horizontal eight, consisting of two 360° circles.
The manoeuvre is not intended as a hover manoeuvre. In case of low flying speed and banking angle less than 45deg, a ~~maximum of 15 points can be given~~ **<u>severe downgrade will apply</u>**.

1.9 360°-turn with roll K=6.0
MA enters in upright forward flight **<u>in the center of the window and then after a straight and level flight section</u>** ~~and~~ performs a quarter (inside) loop to a vertical climb. Just before the stall, MA performs a 360°-pirouette to a vertical (backward) dive, followed by another quarter (inside) loop to upright flight and an axial backward roll **<u>centered on the main judge's line</u>**.

<u>Note 1: The 1/4 input and output loop must be the same size.</u>
<u>Note 2: The exit must be at the same height as the entrance.</u>
<u>Note 3: Axial backward roll, must not have a straight line after 1/4 of loop and must be centered on the centreline of the window.</u>

1.11 Spike K=7.0
MA enters in upright forward flight. MA performs a ~~half~~ 2-point **<u>half</u>** roll, followed by minimum 10m inverted flight. MA then performs ¼ outside loop and ascents vertically. MA then descents vertically and performs ¼ inside backwards loop with same radius as before, followed by minimum 10m upright backwards flight. MA then performs ~~half~~ **<u>a</u>** 2-point **<u>half</u>** roll, and exits in backward inverted flight on the same line as the manoeuvre was started.

1.12 Inverted backwards horizontal eight K=7.0
MA enters in inverted backward flight parallel to the judges' line, performs a 90°-turn to a straight flight above the centreline and then performs a horizontal eight, consisting of two 360° circles with the tail always pointing in flight direction.
<u>The manoeuvre is not intended as a hover manoeuvre. In case of low flying speed and banking angle less than 45°, a severe downgrade will apply.</u>

1.16 Tumbling Circuit K=8.0
MA enters in backwards upright flight parallel to judge line. Before passing centreline MA performs ¼ backward inside loop, which stops on the centreline. MA then completes a horizontal circle while doing sequence of half forward outside loops and half backward inside loops. Circle must include **<u>a minimum</u>** 4 of ~~those~~ **<u>these</u>** sequences **<u>distributed equally</u>**. When passing centreline again, MA performs ¼ forward outside loop, and exits in forward inverted flight on same line as manoeuvre was started.

1.17 Triple pirouetting flip K=8.0
MA hovers **<u>on centreline</u>** and then starts pirouetting. At the same time or after one pirouette the MA starts to flip three times while it continues to perform pirouettes **<u>continuously</u>**. There should be at least one pirouette during each 360° flip (2 pirouettes are shown **<u>only as an example</u>** in the drawing). ~~Both rotations should have a constant rate and the MA maintains its position during the manoeuvre.~~ **<u>MA finishes by stopping in the same hover position and orientation as the starting point. Pirouettes and rotations should have a constant rate.</u>**

1.18 Cuban eight backwards K=8.0
MA enters in upright backward flight and performs a 5/8 inside loop to a 45°~~-descent~~ **<u>downline</u>**. **<u>The MA then</u>**~~. It~~ performs a half roll **<u>centred on the downline</u>**, followed by a ¾ inside loop and another half roll **<u>centred</u>** in **<u>the</u>** 45°~~-descent~~ **<u>downline</u>**. MA then finishes the first partial loop to upright backward flight. The tail of the MA **<u>should</u>** always ~~points in the flight direction~~ **<u>point in the direction of flight</u>**.

1.19 Pirouetting loop K=8.0
MA enters in upright flight and starts performing pirouettes **when reaching the centreline**. ~~Then~~ **The MA then** ~~it~~ performs an inside loop while constantly ~~rotating~~ **performing pirouettes** about the yaw axis. During the **one** loop there ~~have to~~ **must** be at least 2~~, max~~ **but not more than** 6 pirouettes. The pirouettes should be distributed ~~equal on the loop~~ **equally through the loop and stop on centreline before exiting**.

1.20 Backward rolling circle K=9.0
MA enters in **upright** backward flight and performs a horizontal circle while it performs consecutive axial rolls. MA speed, rolling rate and the radius of the circle should be constant ~~and the tail of the MA always points in the flight direction~~. **The tail of the MA should always point in the direction of flight. Rolling should start and stop on centreline. MA exits in backward upright flight.**

1.21 Waltz K=8.5
MA enters in inverted flight and **on centreline immediately** performs a quarter pirouette ~~(tail turns to circle centre) to enter~~**, tail rotates to circle centre and enters** a funnel. After a quarter funnel MA performs a complete smaller funnel (max. half diameter of the first) then continues with another quarter larger funnel, followed again by a complete smaller funnel etc. After the larger funnel is completed there is again a complete smaller funnel, followed immediately **on centreline** by another quarter pirouette to the exit in inverted flight. The diameter of the large funnel should be at least 20 meters.

1.22 Double 4-point Tic-toc K=8.0
MA hovers **tail in on centreline** and **is** then ~~is~~ rotated ~~(Nose up)~~ **nose up by pulled flip to approx.** 135°. It then starts rotating alternately about the lateral axis for about 45° in each direction. Both 45°-positions have to be reached one time ~~(ie one tic-toc)~~ **for one tic-toc.** ~~and then t~~ **T**he MA **then rotates by 90° on a clock face.**~~performs a quarter pirouette~~. It performs another tic-toc in this position, then again performs another ~~quarter pirouette~~ **90° rotation** and so on, until it **has** performed two complete ~~pirouettes~~ **rotations of a clock face** while executing tic-tocs. **The MA should describe a circular shape during the manoeuvre.** The ~~quarter pirouette~~ **90° rotations** can ~~either~~ be performed ~~just~~ **either** when the model reaches one of the ~~2~~ **two** end positions, or integrated in the movement back, before the next tic-toc is performed.

1.23 Pirouetting funnel K=8.5
MA enters in inverted flight and then starts pirouetting whereas it performs three superimposed circles in lateral inverted flight with the rotor disk tilt at least 45 degree from a horizontal plane. The diameter of the circles should be at least 10 meters and there should be at least three pirouettes during each circle. **MA exits in inverted flight.**

1.24 Four point tic-toc reversal K=9.0
MA hovers ~~with the tail to the judges' line and is brought to vertical position (Nose up) about~~ **on centreline tail in and is then rotated nose up by pulled flip to** 135°. It then starts rotating alternately about the lateral axis for about 45° in each direction. Both 45°-positions have to be reached one time ~~(i.e. one tictoc)~~ **for one tic-toc.** ~~and then t~~**T**he MA ~~performs a quarter pirouette in clockwise direction~~ **then rotates by 90° clockwise on a clock face**. It performs another ~~complete~~ tictoc in this position, then again performs another ~~quarter pirouette in clockwise direction~~ **90° rotation** and so on**, until it has performed one complete rotation of a clock face while executing tic-tocs**. ~~After the MA has performed a complete pirouette, the MA starts immediately a second 4-time tictoc in anti-clockwise direction. The MA maintains its position during the manoeuvre.~~ **The MA now immediately begins a full rotation in the opposite direction, following the same tic toc steps. The MA should describe a circular shape during the manoeuvre.**
The 90° rotations can be performed either when the model reaches one of the two end positions, or integrated in the movement back, before the next tic-toc is performed.

1.25 Pirouetting globe K=9.0
MA enters in upright flight and then performs four pirouetting loops. During each loop, the flight path is changed in a way, that the next loop is rotated about 45° (seen from above) until a complete globe has been described. The MA exits the manoeuvre at the same altitude but in opposite direction to the beginning. During each loop~~, the MA~~ **there** must ~~perform at least two pirouettes~~ **be at least 2 but not more than 6 pirouettes. The pirouettes should be distributed equally through the loop.**

1.26 Duus Iglo K=9.0
Viewed from above, the manoeuvre shows an X. The centre point of the X is on the centreline. MA enters in 1 of the 4 outer points in the X in upright hovering and boom pointing to centre of **the** X. Model then performs half pulled rainbow, while also doing an integrated half pirouette. Top of rainbow must be **at** the centre of the X. ~~Here model~~ **MA then** makes **a** sharp quarter aileron roll, and completes second half of the rainbow while making another integrated half pirouette until model hovers inverted shortly. The boom still points to centre of the X, but now in another of the 4 outer points. Same sequence is then repeated 3 more times, until MA is back at **the** starting point. ~~Notice h~~**H**overing ~~is~~ **will be** inverted after **the** first and third ~~sequence~~ **legs**.

1.27 Rolling Circle Tail Reversal K=9.5
MA enters in forward upright flight parallel to judge line. Immediately after passing centreline, MA starts a horizontal rolling circle. After each quarter of the circle, MA performs **a** half elevator flip. After **each** half flip the roll input direction must be changed. After **a** complete circle and **the** four half flips, MA exits in forward upright flight. Speed and height of MA ~~must~~ **should** be constant during complete manoeuvre.

1.28 Funnel with half rolls K=9.5
MA enters in inverted flight and performs a quarter pirouette. MA then performs three superimposed circles in lateral inverted flight with the rotor disk tilt at least 45 degree from a horizontal plane. After each half funnel except the last, the MA performs a half roll **centred on the centreline**. After three funnels ~~(~~and five half rolls~~)~~ the MA exits in upright flight. The diameter of the circles should be at least 10 meters. ~~For all the half rolls, MA rotordisc should be vertical when passing centreline.~~

1.29 Pirorainbow X reversal K=11.0
MA hovers over the centreline with an angle of 45°, then enters the manoeuvre with a rainbow, a not stationary flip that follows an arched flight path of at least 10 meters length. During the rainbow the MA performs one pirouette in each direction, with the reverse on the top of the rainbow. Then another rainbow (with pirouette reversal) leads back to the starting point. MA then continues with these rainbows ~~alternately about the longitudinal and the lateral axis~~ **rotating in 90° steps CW or CCW**, until the four outer points of an X (viewed from above) are reached and MA hovers where it started the manoeuvre. MA does not perform any part of **the** pirouettes, when hovering in the centre. During the stops at the four outer points, rotor disk must be horizontal but there should be no hovering.

1.30 Vertical Tic Toc Eight K=10.5
~~MA~~ **Model** enters in upright forward flight and performs a quarter roll to knife edge ~~tic-tocs. Model~~ **on centreline, MA** then performs a half tic-toc loop. On the top of the loop MA performs a half pirouette, and then continues up with another half tic-toc loop while keeping the tail in the flight direction. On top of this second circle MA performs a half roll. It completes the upper tic-toc loop with the tail in the flight direction. It then performs another half pirouette and completes the lower tic-toc loop with the nose in the flight direction. Model exi~~s~~ts in upright forward flight.
During the manoeuvre the longitudinal axis of the model always follows the flight path.