

ANNEX 5X
F3S – RADIO CONTROLLED AEROBATIC JET MODEL AIRCRAFT
DESCRIPTION OF MANOEUVRES

BASIC SCHEDULE F3S SB-19 (FROM 2019)

SB 19.01 Loop

From upright, pull through a loop, exit upright

SB 19.02 Knife edge Flight

From upright perform a $\frac{1}{4}$ roll into sustained Knife Edge Flight, perform a $\frac{1}{4}$ roll, exit upright.

SB 19.03 Reverse Cuban Eight with $\frac{1}{2}$ roll, $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{8}$ loop into a 45° upline, perform $\frac{1}{2}$ roll, pull through a $\frac{3}{4}$ loop into a 45° downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{5}{8}$ loop, exit upright.

SB 19.04 Figure 9 with roll up

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform a roll, pull through a $\frac{3}{4}$ loop, exit upright.

SB 19.05 45° Upline with $\frac{1}{2}$ roll

From upright, pull into a 45° upline, perform a $\frac{1}{2}$ roll, pull through $\frac{1}{4}$ loop, exit inverted.

SB 19.06 Slow roll

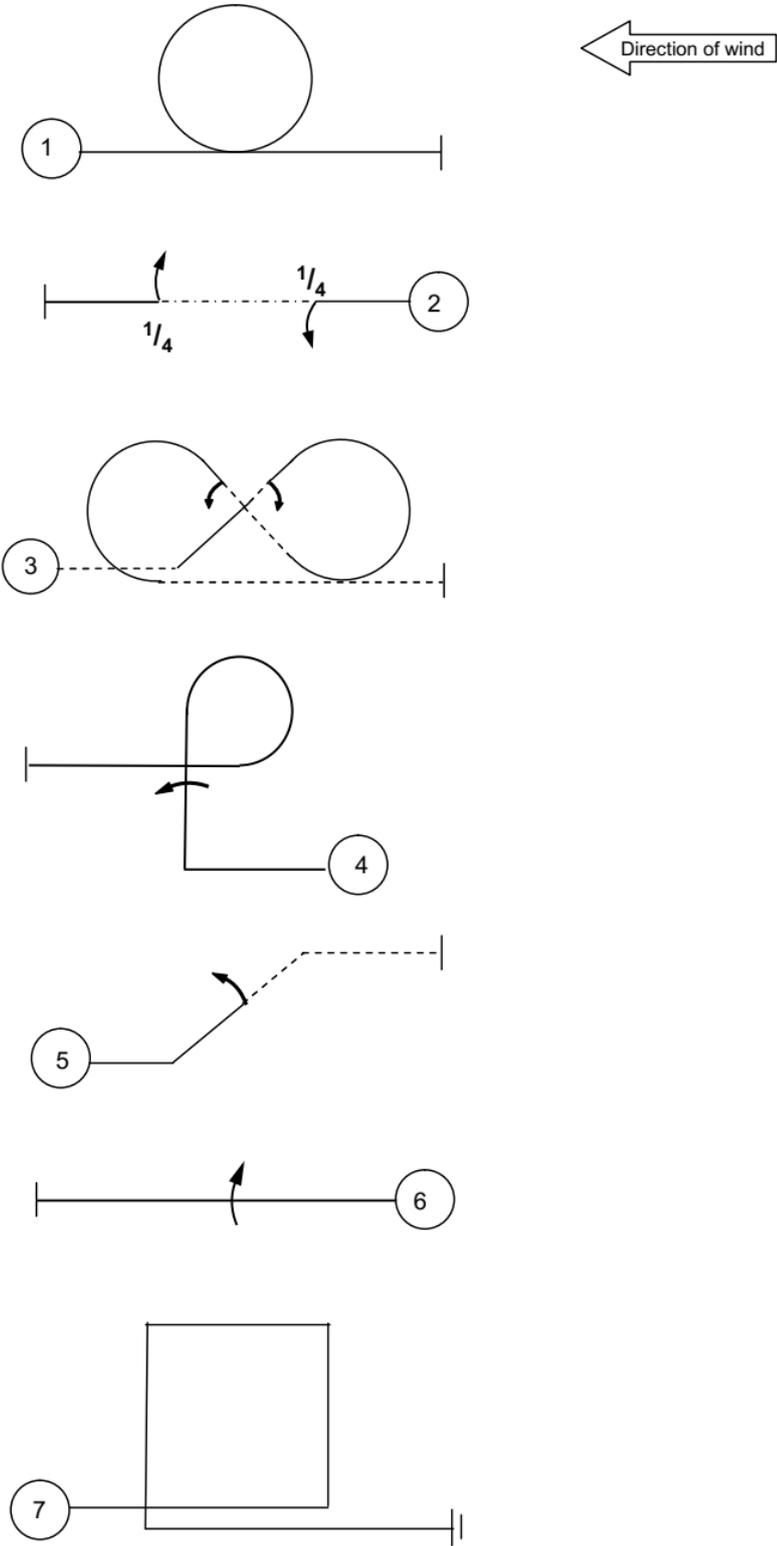
From upright perform a low roll, exit upright

SB 19.07 Square Loop

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, pull through a $\frac{1}{4}$ loop, pull through a $\frac{1}{4}$ loop into a vertical downline, pull through a $\frac{1}{4}$ loop, exit upright.

The Aresti diagrams appear overleaf.

F3S Basic from 2019



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PRELIMINARY SCHEDULE F3S SP-19 (FROM 2019)

SP-19.01 Loop, with roll integrated over top 90 degrees

From upright, pull through a loop while performing an integrated roll in the top 90 degrees of the loop, exit upright.

SP-19.02 Half Reverse Cuban 8 with $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{8}$ loop into a 45 degree upline, perform a $\frac{1}{2}$ roll, pull through a $\frac{5}{8}$ loop, exit upright.

SP-19.03 Knife-edge Flight

From upright, perform a $\frac{1}{4}$ roll to knife-edge flight, perform a $\frac{1}{4}$ roll, exit upright.

SP-19.04 Immelmann with $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{2}$ loop, immediately followed by $\frac{1}{2}$ roll, exit upright.

SP-19.05 Reverse Cuban 8 from top with $\frac{1}{2}$ roll, roll

From upright, push through a $\frac{1}{8}$ loop into a 45° downline, perform $\frac{1}{2}$ roll, push through a $\frac{3}{4}$ loop into a 45°downline, perform a roll, pull through a $\frac{5}{8}$ loop, exit inverted.

SP-19.06 Half Loop

From inverted, pull through a $\frac{1}{2}$ loop, exit upright.

SP-19.07 Figure 9 with roll up

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform a roll, pull through a $\frac{3}{4}$ loop, exit upright.

SP-19.08 Pull-push-pull Humpty Bump with half roll down

From upright, pull through a $\frac{1}{4}$ loop to a vertical upline, push through a $\frac{1}{2}$ loop into a vertical downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop, exit upright.

SP-19.09 45 ° Upline with three consecutive $\frac{1}{2}$ rolls

From upright, pull into a 45 degree upline, perform consecutively three $\frac{1}{2}$ rolls, pull through $\frac{1}{4}$ loop, exit inverted.

SP-19.10 Half Square Loop

From inverted, pull through a $\frac{1}{4}$ loop into a vertical downline, pull through a $\frac{1}{4}$ loop,, exit upright.

SP-19.11 Slow roll

From upright, perform a slow roll, exit upright.

SP-19.12 Half Cuban 8 with $\frac{1}{2}$ roll

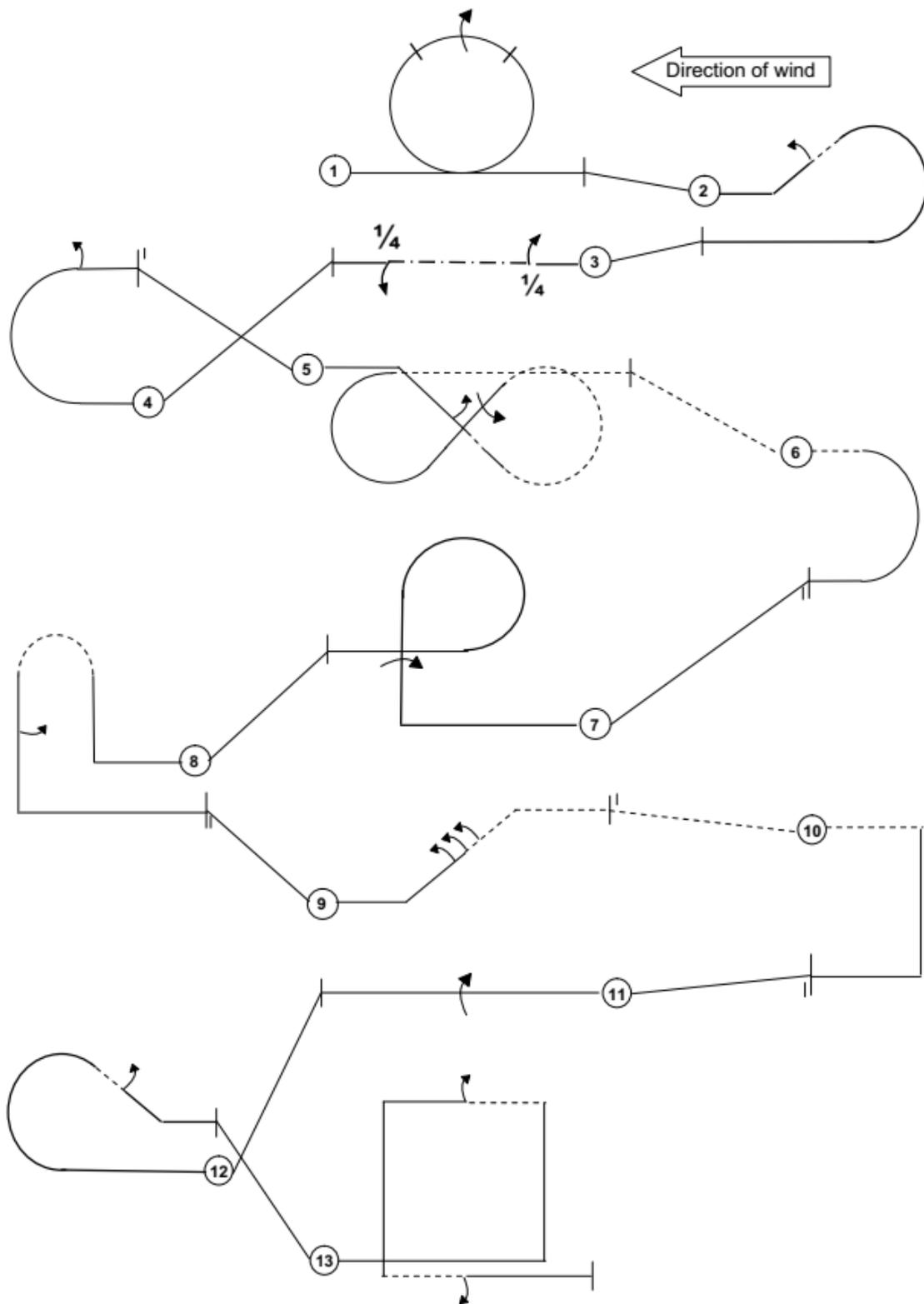
From upright, pull through a $\frac{5}{8}$ loop into 45° downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop exit upright.

SP-19.13 Square Loop with $\frac{1}{2}$ roll, $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, pull through a $\frac{1}{4}$ loop perform $\frac{1}{2}$ roll, push through a $\frac{1}{4}$ loop into a vertical downline, push through a $\frac{1}{4}$ loop, perform $\frac{1}{2}$ roll, exit upright.

The Aresti diagrams appear overleaf.

Preliminary Schedule SP-19 from 2019



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FINAL SCHEDULE F3S SF-19

SF-19.01 Square Loop on corner with $\frac{1}{2}$ roll, $\frac{1}{2}$ roll, $\frac{1}{2}$ roll, $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{8}$ loop into a 45° upline, perform a $\frac{1}{2}$ roll, push through a $\frac{1}{4}$ loop into a 45° upline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop into a 45° downline, perform a $\frac{1}{2}$ roll, push through a $\frac{1}{4}$ loop into a 45° downline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{8}$ loop, exit upright.

SF-19.02 Shark Fin with two consecutive $\frac{1}{4}$ rolls

From upright, pull through a $\frac{1}{8}$ loop into a 45° upline, perform consecutively two $\frac{1}{4}$ rolls, pull through a $\frac{3}{8}$ loop, pull through a $\frac{1}{4}$ loop, exit upright.

SF-19.03 Knife-edge Flight with roll

From upright, perform a $\frac{1}{4}$ roll, perform a knife-edge flight, perform a roll in opposite direction to the $\frac{1}{4}$ roll, perform a knife-edge flight, perform a $\frac{1}{4}$ roll in opposite direction to the roll, exit inverted.

SF-19.04 Pushed Immelman with roll

From inverted, push through a half loop, immediately followed by a roll, exit upright.

SF-19.05 Rolling Loop

From upright, push through a loop while integrating one roll, exit upright.

SF-19.06 Half Square Loop with $\frac{1}{2}$ roll

From upright, push through a $\frac{1}{4}$ loop, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop, exit upright.

SF-19.07 Figure 9 with four consecutive $\frac{1}{4}$ rolls

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform consecutively four $\frac{1}{4}$ rolls, pull through a $\frac{3}{4}$ loop, exit upright.

SF-19.08 Pull-push-pull Humpty Bump with consecutive two $\frac{1}{4}$ rolls

From upright, pull through a $\frac{1}{4}$ loop to a vertical upline, push through a $\frac{1}{2}$ loop into a vertical downline, perform consecutively two $\frac{1}{4}$ rolls, pull through a $\frac{1}{4}$ loop, exit upright.

SF-19.09 Avalanche

From upright, pull through a loop, while performing a snap roll on top, exit upright.

SF-19.10 Top Hat with two consecutive $\frac{1}{4}$ rolls, $\frac{1}{2}$ roll

From upright, pull through a $\frac{1}{4}$ loop into a vertical upline, perform consecutively two $\frac{1}{4}$ rolls, pull through a $\frac{1}{4}$ loop into a horizontal line, pull through a $\frac{1}{4}$ loop into a vertical downline, perform a $\frac{1}{2}$ roll, push through a $\frac{1}{4}$ loop, exit inverted.

SF-19.11 Knife Edge Humpty Bump with $\frac{1}{4}$ roll, $\frac{3}{4}$ roll

From inverted, fly past center, push through a $\frac{1}{4}$ loop into a vertical upline, perform a $\frac{1}{4}$ roll, perform a $\frac{1}{2}$ knife edge loop into a vertical downline, perform a $\frac{3}{4}$ roll, push through a $\frac{1}{4}$ loop, exit inverted.

SF-19.12 Half Square Loop on corner with half roll

From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform a $\frac{1}{2}$ roll, pull through a $\frac{1}{4}$ loop into a 45° upline, pull through a $\frac{1}{8}$ loop, exit inverted.

SF-19.13 Reverse Nine with $\frac{3}{4}$ roll, $\frac{3}{4}$ roll

From inverted push through a $\frac{7}{8}$ loop into a 45° downline perform consecutively two $\frac{3}{4}$ rolls in opposite direction, push through a $\frac{1}{8}$ loop, exit inverted.

SF-19.14 Half reverse Cuban 8 with roll

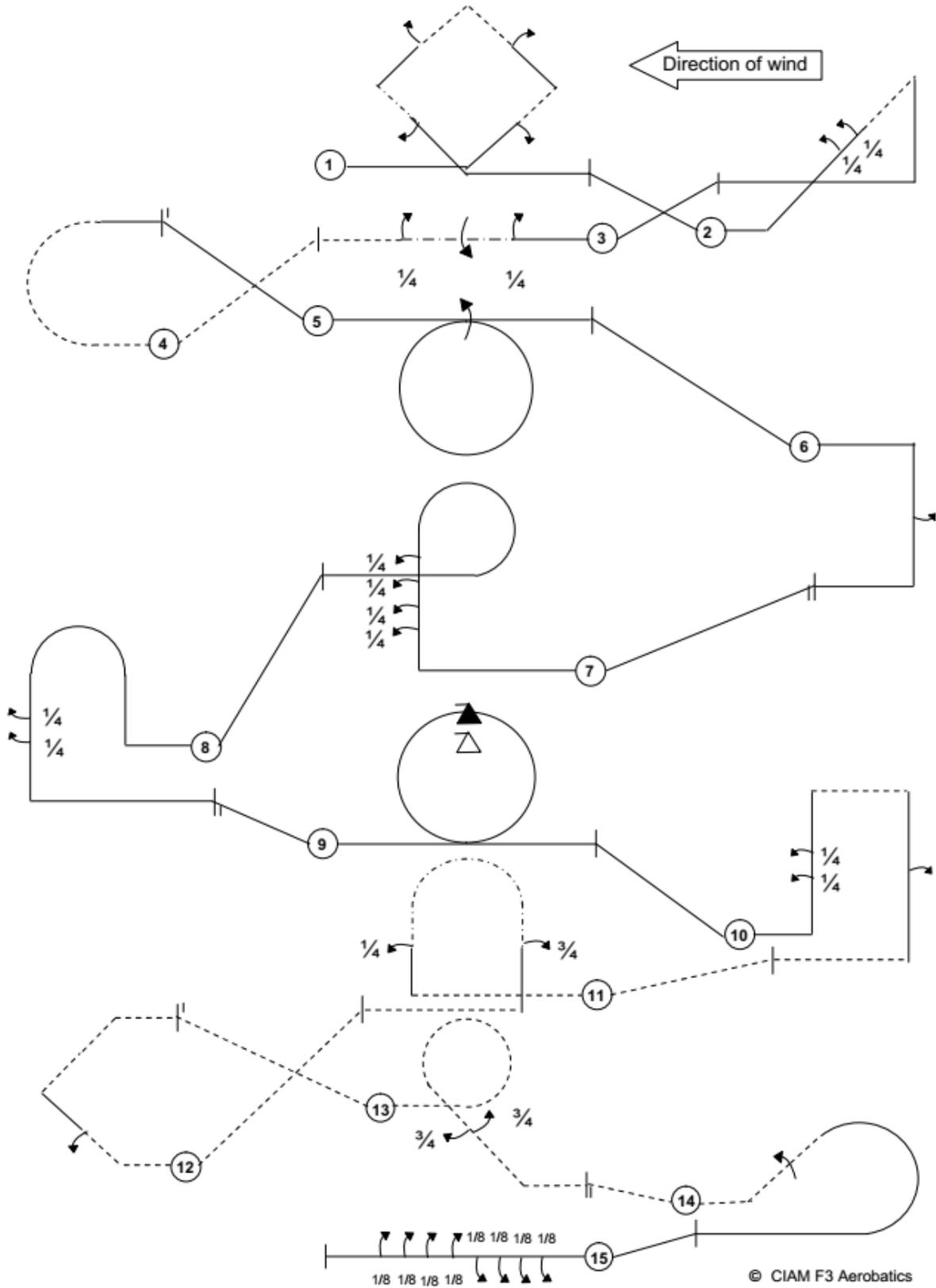
From inverted, push through a $\frac{1}{8}$ loop into a 45° upline, perform a roll, pull through a $\frac{5}{8}$ loop, exit upright.

SF-19.15 Roll Combination with four consecutive $\frac{1}{8}$ rolls, four $\frac{1}{8}$ rolls in opposite direction

From upright perform consecutively 4 $\frac{1}{8}$ rolls, four $\frac{1}{8}$ rolls in opposite direction.

The Aresti diagrams appear overleaf.

Final Schedule SF 19 from 2019



F3S-individual Freestyle (F3S-FS), added event

After the competition flights with schedule SP and SF, one or two Freestyle Rounds may be held as part of the event, with an independent classification, depending on local circumstances and the time available.

Every competitor who takes part in the competition has the right to take part at the freestyle round, with one of the two models registered in the competition at his choice.

The freestyle event can be held only with a minimum of 5 competitors or more.

The total of the round (normalised to 1000 points) will count as final classification for the individual Freestyle competition.

The allowed starting time is six (6) minutes. The competitor must be informed when five (5) minutes of the starting time have elapsed.

Music starts when the competitor has signaled his wish to start the music to the operator of music. This has to be done within the first thirty (30) seconds after take off. The duration of the music must be five (5) minutes +/- 5 seconds. Judging of the flight starts with the beginning of the music, the flight ends at the stop of the music. The model has to be landed immediately after the music has ended or with ending of the music

FS 1. Take-off Sequence

Place the model aircraft on the floor and take-off.

FS 2. Freestyle

A sequence of manoeuvres, freely composed by the competitor and flown in harmony to simultaneously played music of his choice. Any possible flight manoeuvres may be flown and "show effects" presented, as long as safety is not compromised and conformity to the rules is met. It is permitted to perform different programs in conjunction with different music in each round. The performance is judged for the entire flight from start to finish and in accordance to the following **five** criteria:

For Freestyle flights the judges can give up to the maximum points. The scores are given after the flight for all **five** criteria. It is important, that the scores for each criterion reflect the entire flight, not only some details of the flight.

Precision and Accuracy

K-19

The manoeuvres and figures should be executed with precision and accuracy, with the competitor demonstrating that he has the aircraft under full control in all attitudes. It should be clear to the judges that the manoeuvres flown, were in fact, intended and fully under the pilot's control. Higher marks will be given under this heading when individual manoeuvre elements are started and finished on obviously precise headings and well-defined attitudes

Complexity

K-19

This criterion evaluates the level of difficulty and variety of manoeuvres of the freestyle flight. It is important, that the entire flight is to be judged, not only some highlights. So the score reflects the average level of difficulty and variety. In addition, the pilot is to utilise the full flight performance scope of his model. Fast and slow flying, snap manoeuvres, hovering etc. The manoeuvres should show positive as well as negative "g"-portions: loops, rolls, snaps, spins, stall-turns, tailslides, hovering, torque-rolls, flat circles, Lomcevacs, circles, etc. Frequent repetition of the same manoeuvre has to be downgraded respectively. Manoeuvres should be positioned in parallel or rectangular to the safety line. Poorly governed, unplanned or casually flown manoeuvres will be downgraded. The same applies to phases less extraordinarily attractive.

Risky manoeuvres should never be mistaken as difficult manoeuvres. Risky manoeuvres must not lead to higher scores for difficulty, but result in a downgrade for safety.

Harmony of flight to Music

K-30

The difficulty for competitors in F3S_FS will be to fly perfectly in harmony and rhythm with a musical arrangement that they have selected themselves. The flight performance should be synchronized with the music and must not be a flying with background music.

The manoeuvres should follow the music and end with it. In F3S FS flights, the transformation of musical accents into the performance is of great importance.

The selected music piece(s) should flow through transitions, but contain fast-slow, soft-loud and dramatic sections. Dynamic and diversified sequences will lead to higher scores here. There should be a variety of different tempi in the presentation. The mood of the selected music should be reflected in the manoeuvres and the presentation. Flights to Music pieces with little contrast, variety or tempi result in downgrades.

Marks should be deducted in this category for a flight that shows no relation between the rhythm of the evolutions and the music, therefore transforming the musical accompaniment to simple background music.

Utilization of Manoeuvring Area

K-10

The presentation should fill the manoeuvring area. The performance should be orientated towards judges and spectators, although risky flying towards judges and spectators will result in downgrades.

Special Effects

K-10

For special effects, additional points can be given. (see Judges Notes)

Special effects may be used for making the presentation of the freestyle flight more spectacular through the use of:

Smoke:

Main turbine smoke and wing tips smoke may be used to empathise the freestyle manoeuvres in a positive way (max. 5 points)

Lights can be a part of the model aircraft. They may be switched on and off during the flight or used to match the beat of the music. (max. 2,5 points)

Other:

Unspecified special effects that pilots elect to use or may be created in the future. (max, 2,5 points)

Judges Notes:

F3S-FS focuses on spectator and media efficacy. This is why the performances should be extraordinarily spectacular and entertaining under these aspects.

Judging of freestyle performance is more subjective and can't be done like used in F3S Aerobatics (P and F schedules by deducting points. So judging for Precision and Accuracy, Complexity, Harmony to Music and Utilisation of Manoeuvre Area should start around 5 and add or subtract as the flight progresses.

For Special Effect Smoke judges may give a score up to five (5) points. For other Special Effects up to two and a half (2,5) points. If a special effect is presented during the whole flight, there should not be more than ½ point for this effect. If a special effect fails, there should be zero (0) points for this effect. The maximum score for special effects is ten (10), if four (4) special effects are presented.

Bias in favour of, or against, particular persons, models, music pieces etc must not influence the judging.

For the Judges it is recommended to make "pencil" notes right away during the presentation. So corrections are still possible in course of the flight. All criteria have to be marked simultaneously and evenly.

It is recommended for judges, to watch and judge Freestyle training flights to find a level and see some differences.

FS 3. Landing Sequence

Landing has to be done in a safe manner.