

**ANNEX 5M****F3P – RADIO CONTROLLED INDOOR AEROBATIC AIRCRAFT  
DESCRIPTION OF MANOEUVRES****Advanced – Schedule AA-23 (2022-2023)****II****AA-23.01 Pyramid with quarter roll, quarter roll**

From upright, pull through a one eighth loop into a forty-five degree upline, perform a quarter roll, perform a quarter knife loop into a forty-five degree knife-edge downline, perform a quarter roll, push through a one eighth loop, exit inverted.

**AA-23.02 Crossbox Top Hat with quarter roll, half roll, quarter roll**

From inverted, push through a quarter loop into a vertical upline, perform a quarter roll, push through a quarter loop into a crossbox upright horizontal line, perform a half roll, pull through a quarter loop into a vertical downline, perform a quarter roll, pull through a quarter loop, exit upright.

**AA-23.03 Loop with roll integrated**

From upright, pull through a loop while integrating a roll, exit upright.

**AA-23.04 Shark Fin with half roll, half roll**

From upright, pull through a quarter loop into a vertical upline, perform a half roll, push through a three eighths loop into a forty-five-degree downline, perform a half roll, push through a one eighth loop, exit inverted.

**AA-23.05 Torque Roll**

From inverted, push through a quarter loop into a vertical upline, perform a torque roll, pull through a quarter loop, exit inverted

**AA-23.06 Half Hourglass**

From inverted, pull through a one eighth loop into a forty-five degree downline, push through a three eighths loop into a vertical upline, push through a three eighths loop into a forty-five degree downline, pull through a one eighth loop, exit upright.

**AA-23.07 Rolling Circle**

From upright, perform a rolling circle with one roll integrated, exit upright.

**AA-23.08 Figure ET with half roll**

From upright, pull through a one eighth loop into a forty-five-degree upline, perform a half roll, push through a five eighths loop into a vertical downline, pull through a quarter loop, exit upright.

**AA-23.09 Crossbox Figure Z with quarter roll, half roll, quarter roll**

From upright, in the center, perform a quarter roll into knife-edge flight, push through a three eighths knife-edge circle into a forty-five-degree cross box line, perform a half roll, push through a three eighths knife-edge circle, perform a quarter roll, exit upright.

**AA-23.10 Stall Turn with quarter roll, quarter roll**

From upright pull through a quarter loop into a vertical upline, perform a quarter roll, perform a stall turn into a vertical downline, perform a quarter roll, pull through a quarter loop exit upright.

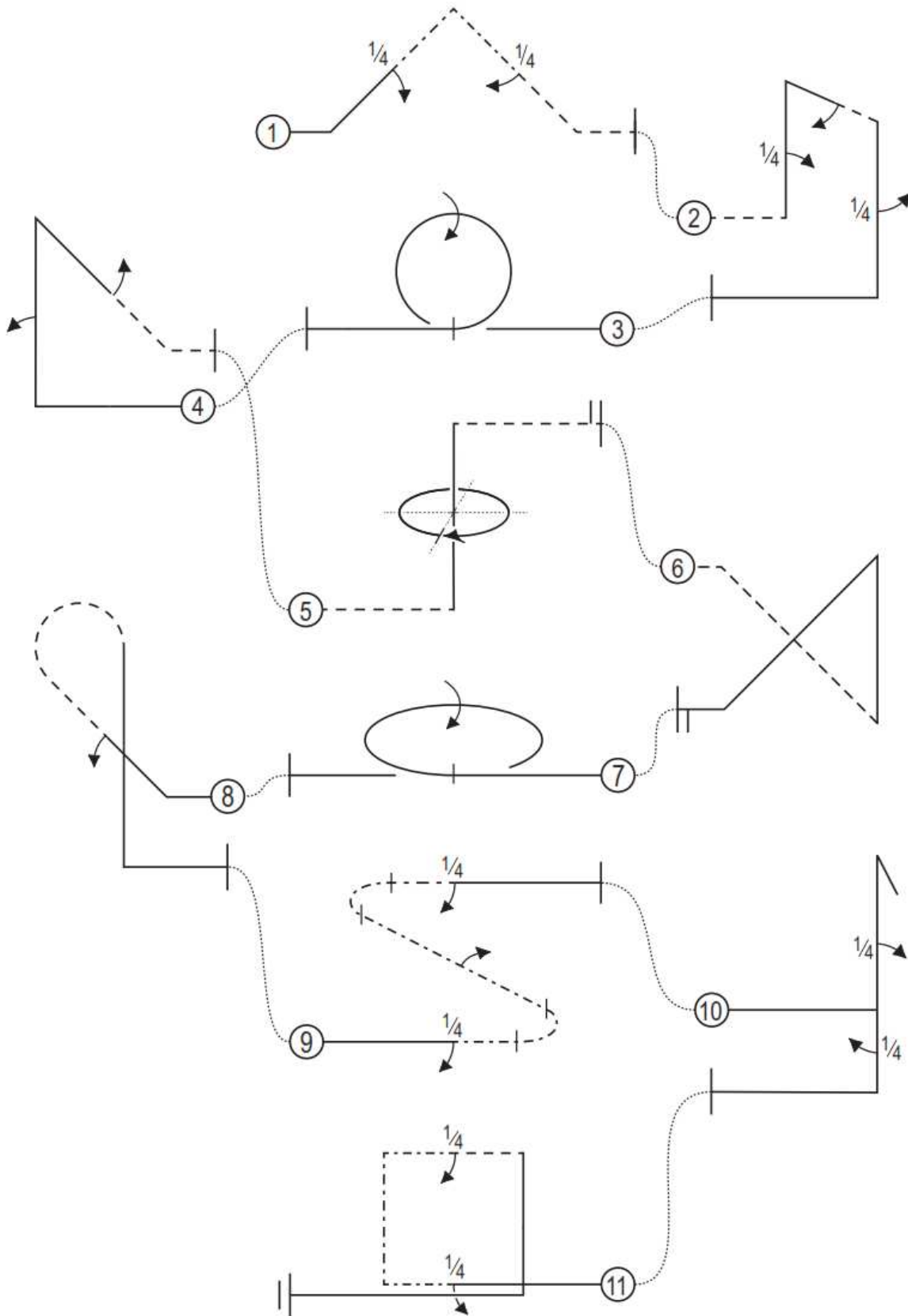
**AA-23.11 Square Loop with quarter roll, quarter roll**

From upright, in the center perform a quarter roll into knife-edge flight, perform a quarter knife-edge loop into a vertical upline, perform a quarter knife-edge loop, perform a quarter roll, pull through a quarter loop into a vertical downline, pull through a quarter loop, exit upright.

(Note: The manoeuvre is finished when the aircraft has crossed the center line.)

*The Aresti diagram appears overleaf.*

## ADVANCED SCHEDULE AA-23 (2022-2023)



**Preliminary Schedule AP-23 (2022-2023)****AP-23.01 Pyramid with quarter roll, half roll integrated, quarter roll**

From upright, pull through a one eighth loop into a forty-five degree upline, perform a quarter roll, perform a quarter knife-edge loop with integrated half roll into a forty-five-degree knife-edge downline, perform a quarter roll, push through a one eighth loop, exit inverted.

**AP-23.02 Crossbox Top Hat with half roll, half roll, half roll**

From inverted, push through a quarter loop into a vertical upline, perform a half roll, perform a quarter knife-edge loop into a crossbox knife-edge flight, perform a half roll, perform a quarter knife-edge loop into a vertical downline, perform a half roll, pull through a quarter loop, exit upright.

**AP-23.03 Loop with half roll integrated, half roll in opposite direction integrated**

From upright, pull through a loop while integrating a half roll into the first 180 degrees of the loop and a half roll in opposite direction to the first half roll into the second 180 degrees of the loop, exit upright.

**AP-23.04 Shark Fin with quarter roll, half roll, quarter roll**

From upright, perform a quarter roll into knife-edge flight, perform a quarter knife-edge loop into a vertical upline, perform a half roll, perform a three eighths knife-edge loop into a forty-five degree downline, perform a quarter roll, push through a one eighth loop, exit inverted.

**AP-23.05 Three quarter Torque Roll, Upline, three Quarter Torque Roll in opposite direction**

From inverted, push through a quarter loop into a vertical upline, perform a three quarter torque roll, followed by a vertical upline, perform a three quarter torque roll in opposite direction to the first torque roll, pull through a quarter loop, exit inverted.

**AP-23.06 Half Hourglass with two consecutive quarter rolls, roll, half roll**

From inverted, pull through a one eighth loop into a forty-five-degree downline, perform consecutively two quarter rolls, pull through a three eighths loop into a vertical upline, perform a roll, pull through a three eighths loop into a forty-five-degree downline, perform a half roll, pull through a one eighth loop, exit upright.

**AP-23.07 Rolling Circle with two rolls in opposite directions**

From upright, perform a rolling circle with two rolls in opposite directions integrated (first roll to the outside), exit upright.

**AP-23.08 Figure ET with quarter roll, quarter roll**

From upright, pull through a one eighth loop into a forty-five degree upline, perform a quarter roll, perform a five eighths knife-edge loop into a vertical downline, perform a quarter roll, pull through a quarter loop, exit upright.

**AP-23.09 Crossbox Figure Z with quarter roll, four consecutive one eighth rolls, quarter roll**

From upright, in the center, perform a quarter roll into knife-edge flight, push through a three eighths knife-edge circle into a forty-five degree cross box line, perform consecutively four one eighth rolls, push through a three eighths knife-edge circle, perform a quarter roll, exit inverted.

**AP-23.10 Stall Turn with three quarter roll, quarter roll**

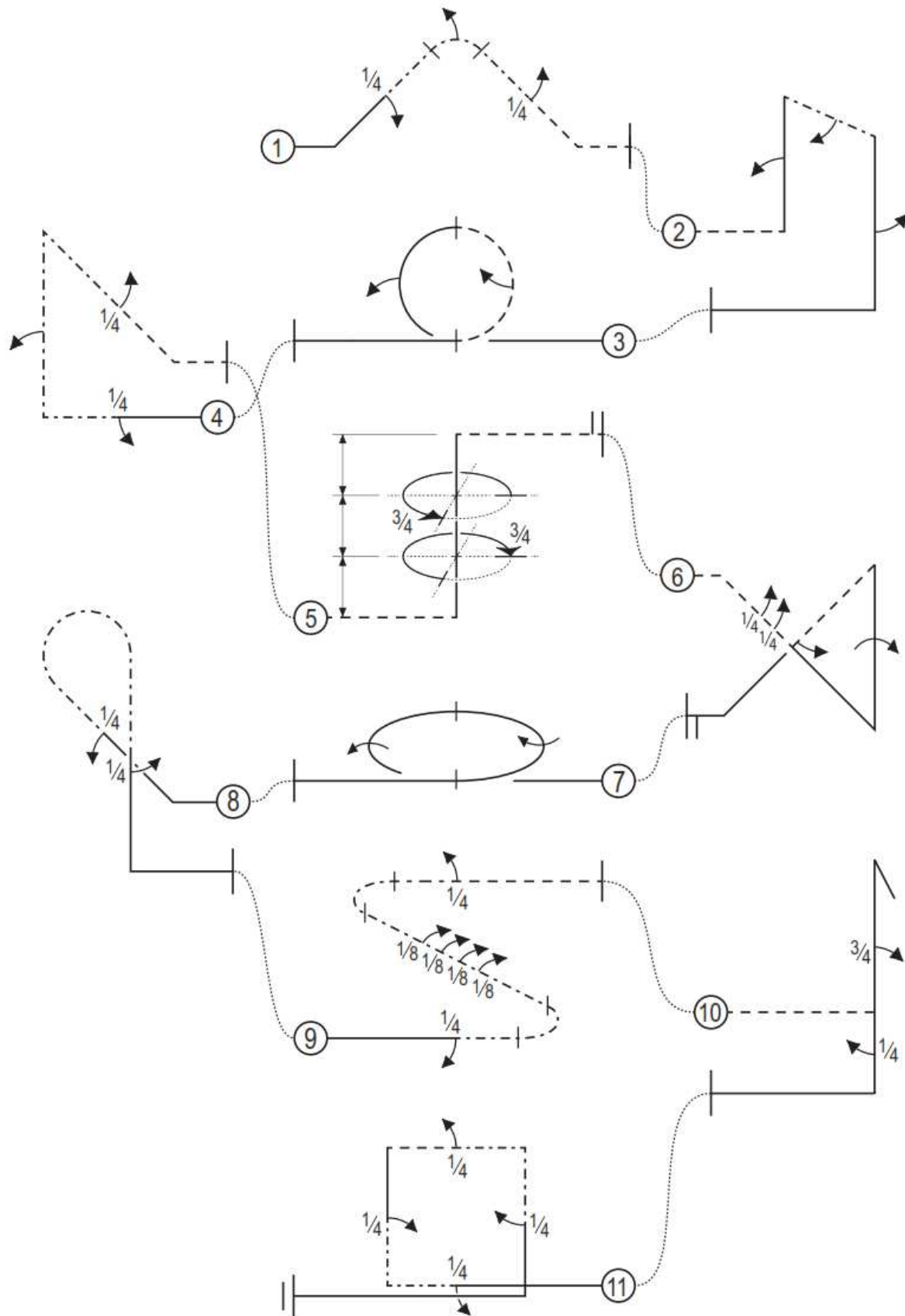
From inverted push through a quarter loop into a vertical upline, perform a three quarter roll, perform a stall turn into a vertical downline, perform a quarter roll, pull through a quarter loop exit upright.

**AP-23.11 Square Loop with quarter roll, quarter roll, quarter roll, quarter roll**

From upright, in the center perform a quarter roll into knife-edge flight, perform a quarter knife-edge loop into a vertical upline, perform a quarter roll, pull through a quarter loop, perform a quarter roll, perform a quarter knife-edge loop into a vertical downline, perform a quarter roll, pull through a quarter loop, exit upright.  
(Note: The manoeuvre is finished when the aircraft has crossed the center line.)

*The Aresti diagram appears overleaf.*

# PRELIMINARY SCHEDULE AP-23 (2022-2023)



**Final Schedule AF-23 (2022-2023)****AF-23.01 Square Loop with half roll, quarter roll, two consecutive quarter rolls, quarter roll**

From upright, perform a half roll in the center, push through a quarter loop into a vertical upline, perform a quarter roll, perform a quarter knife-edge loop into knife-edge flight, perform consecutively two consecutive quarter rolls in the center, perform a quarter knife-edge loop into a vertical downline, perform a quarter roll, pull through a quarter loop, exit upright.

**AF-23.02 Double Stall Turn with half roll, half roll, half roll**

From upright, pull through a quarter loop into a vertical upline, perform a half roll, perform a stall turn into a vertical downline, perform a quarter knife-edge loop into a knife-edge crossbox line, perform a half roll, perform a quarter knife-edge loop into a vertical upline, perform a half roll, perform a stall turn into a vertical downline, push through a quarter loop, exit inverted.

**AF-23.03 Double Humpty Bump with quarter roll, half roll integrated, quarter roll, quarter roll, half roll integrated, quarter roll**

From inverted, before the center push through a quarter loop into a vertical upline, perform a quarter roll, perform a half knife-edge loop (towards the center) with integrated half roll into a vertical downline, perform a quarter roll, push through a half loop in the center into a vertical upline, perform a quarter roll, perform a half knife-edge loop (away from the center) with integrated half roll into a vertical downline, perform a quarter roll, push through a quarter loop, exit inverted.

**AF-23.04 Half Square Loop with four consecutive one quarter torque rolls**

From inverted, push through a quarter loop into a vertical upline, perform consecutively four one quarter torque rolls on same level, push through a quarter loop, exit upright.

**AF-23.05 Loop Crossbox Circle Combination with half roll integrated, half roll integrated, half roll integrated, half roll integrated**

From upright, push through a half loop, while integrating a half roll, perform a crossbox circle with two half rolls in opposite directions integrated, pull through a half loop, while integrating a half roll in opposite direction of the half roll in the first half loop, exit upright.

**AF-23.06 Half Loop with two consecutive quarter rolls in opposite directions integrated**

From upright push through a half loop while integrating consecutively two quarter rolls in opposite directions, exit inverted.

**AF-23.07 Crossbox Top Hat with quarter roll, two consecutive one eighth rolls, two consecutive one eighth rolls in opposite direction, quarter roll**

From inverted, push through a quarter loop into a vertical upline, perform a quarter roll, push through a quarter loop into a horizontal crossbox line, perform consecutively two one eighth rolls, followed by two consecutive one eighth rolls in opposite direction, push through a quarter loop into a vertical downline, perform a quarter roll, pull through a quarter loop, exit upright.

**AF-23.08 Corner Combination with half roll integrated, quarter roll, half roll integrated**

From upright, perform a quarter circle into a crossbox line, while integrating a half roll, push through a quarter loop into a vertical upline, perform a quarter roll, pull through a quarter loop while integrating a half roll, exit upright.

**AF-23.09 Triangle with quarter roll, half roll integrated, quarter roll**

From upright, fly past center, push through a three eighths loop into a forty-five degree downline, perform a quarter roll, perform a quarter knife-edge loop into a forty-five degree upline, while integrating a half roll, perform a quarter roll, push through a three eighths loop, exit upright.

**AF-23.10 Reverse Shark Fin from Top with quarter roll, half roll, quarter roll**

From upright, push through a one eighth loop into a forty-five degree downline, perform a quarter roll, perform a three eighths knife-edge loop into a vertical upline, perform a half roll, perform a quarter knife-edge loop, perform a quarter roll, exit upright.

**AF-23.11 Triangle Crossbox Square Combination with quarter roll, three consecutive one eighth rolls, half roll, three consecutive one eighth rolls, quarter roll**

From upright, push through a one eighth loop into a forty-five degree downline, perform a quarter roll, pull through a quarter knife-edge loop into a crossbox line with forty-five degree wing level,

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perform consecutively three one eighth rolls into knife-edge flight, push through a quarter knife-edge circle, perform a half roll, pull through a quarter knife-edge circle into a knife-edge crossbox line, perform consecutively three one eighth rolls into forty five degree wing level flight, push through a quarter knife-edge loop into a forty-five degree upline, perform a quarter roll, push through a one eighth loop, exit upright.

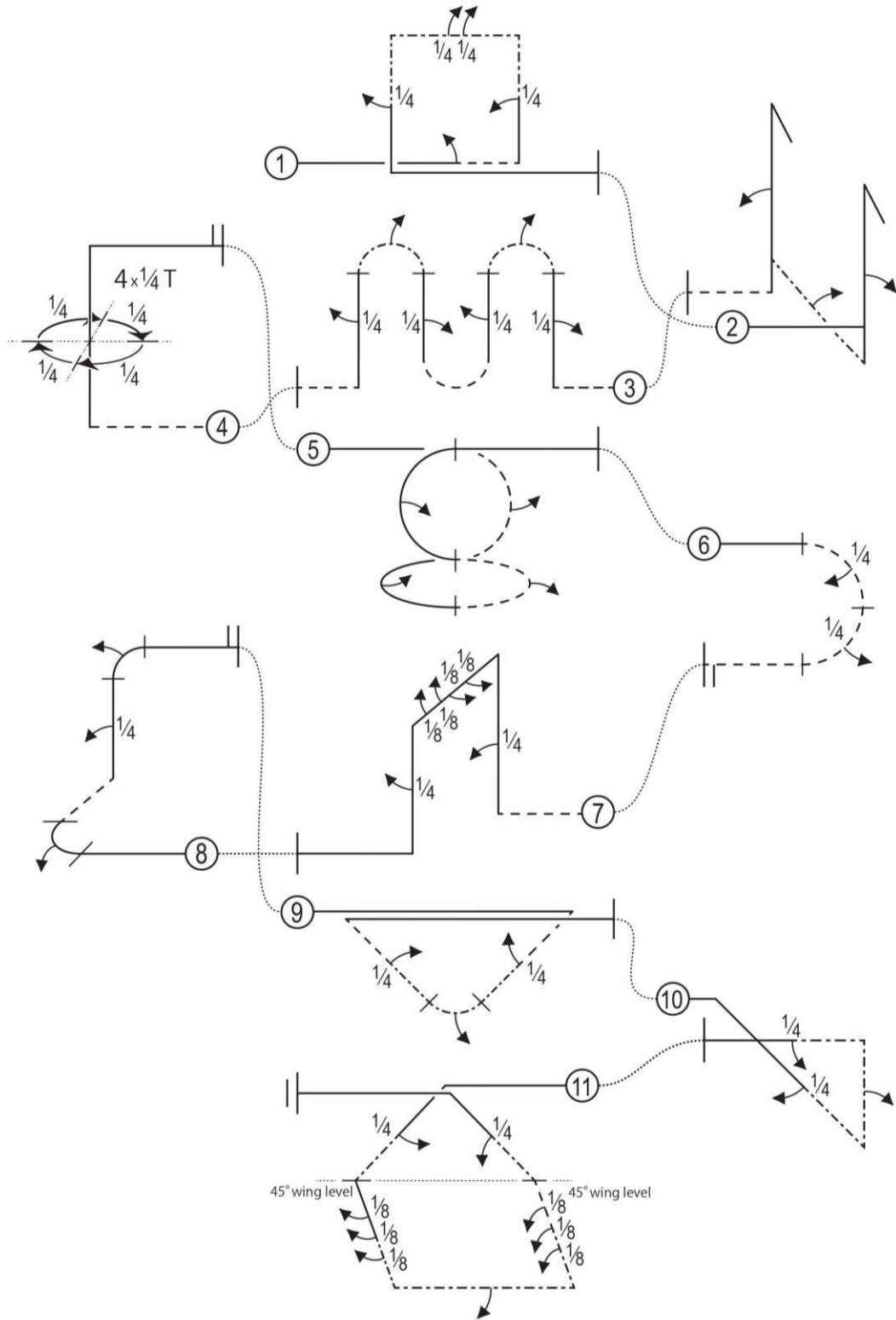
Option:

From upright, push through a one eighth loop into a forty-five degree downline, perform a quarter roll, push through a quarter knife-edge loop into a crossbox line with forty-five degree wing level, perform consecutively three one eighth rolls into knife-edge flight, pull through a quarter knife-edge circle, perform a half roll, push through a quarter knife-edge circle into a knife-edge crossbox line, perform consecutively three one eighth rolls into forty five degree wing level flight, pull through a quarter knife-edge loop into a forty-five degree upline, perform a quarter roll, push through a one eighth loop, exit upright.

Note: Exit starts in the center.

*The Aresti diagram appears on the following page.*

# FINAL SCHEDULE AF-23 (2022-2023)



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Drawings by Ken Hirose  
Nov. 2020

## Manoeuvres – Schedule F3P-AFM

### AFM1. Take-off Sequence

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

### AFM2. 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. For Final flights at World and Continental Championships, it is obligatory to have two different programs, schedule 1 and schedule 2, in conjunction with differently arranged music. Schedule 1 must be flown in final round one and three, Schedule 2 in final round two and four. 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-20**

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-20**

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 that 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, tail-slides, hovering, torque-rolls, flat circles, Lomcevac, 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 AFM will be to fly perfectly in harmony and rhythm with a musical arrangement that they have selected themselves. The flight performance should be synchronised with the music and must not be a "3D-sketch" with background music.

The manoeuvres should follow the music and end with it. In AFM 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.

#### Utilisation 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:

**Variable Propeller Pitch:**

VPP may be used for creating special manoeuvres and special flight effects during the flight.

**Streamers:**

Streamers may be unfolded and dropped off during the flight. After dropping off they may still be used to enhance the flight by being crossed under or over flown by the model aircraft.

**Confetti:**

Confetti may be dropped from the model aircraft as a highlight during the flight.

**Lights:**

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.

**Other:**

Unspecified special effects that pilots elect to use or may create in the future.

**Note:** It is strictly forbidden to present special effects which use open fire effect equipment such as fireworks, smoke bombs or any other flammable materials.

**Judges Notes:**

F3P-AFM 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 with methods used in F3P Aerobatics 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 each one of the Special Effects, judges may give a score up to two (2) 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 five (5) 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 the course of the flight. All criteria have to be marked simultaneously and evenly.

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

**AFM3. Landing Sequence**

The flight may be terminated in any kind of way provided it is performed in a safe manner.