

# Precision Aerobatics Judging Questions – with Answers Explained Set E

Andrew Palmer

With thanks to Russell Edwards and Peter Uhlig

# What Will We Cover?

About myself, my interest in judging and F3A rules

Where to find information on judging

The manoeuvre execution guide and objective judging

NZ F3A P-23 Schedule Questions

(full run through in two weeks)

Tonight's ten questions

Tools to help with judging (and flight training!)

Any questions

# But first, lets get ready with Poll Everywhere

Respond at [Pollev.com/andrewpalmer714](https://Pollev.com/andrewpalmer714)



Its anonymous and free!



# Please remember!

- The rule book is not perfect
  - It does not have all the answers (but almost)
  - I don't have all the answers
  - But I will try and be a good navigator!
- 
- We all hope to fly well, be judged fairly and judge fairly ourselves

(And IMAC is judged differently)

# About Myself



# Where to find Judging Information?



## FAI AEROMODELLING COMMISSION (CIAM)

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### SPORTING CODE

#### SPORTING CODE - SECTION 4: AEROMODELLING



27 APR 2022 Volume CIAM General Rules - edition 2022 (733 KB)



22 MAY 2022 Volume F1 - Free FLight - Edition 2022 (version2) (615 KB)



07 DEC 2021 Volume F2 - Control Line - edition 2022 (1847 KB)



07 DEC 2021 Volume F2 - Control Line Annex 4j - edition 2022 (199 KB)



07 DEC 2021 Volume F3 Aerobatics - edition 2022 (2669 KB)



22 MAY 2022 Volume F3 - Helicopters edition 2022 (version 2) (2410 KB)



07 DEC 2021 Volume F3 Pylon Racing - edition 2022 (1016 KB)



07 DEC 2021 Volume F3 Soaring - edition 2022 (1080 KB)





## 1. WHAT WAS THE DEFECT, or mistake?

- ☐ Over, or under-rolling (or spin, or snap)
- ☐ Poor shape or geometry
- ☐ Rolls not on middle of lines
- ☐ Absence of lines
- ☐ Entry, exit poor
- ☐ Wrong angles
- ☐ Misrelation between line lengths
- ☐ Different roll rates
- ☐ Etc.

## 2. HOW SERIOUS was the defect, or mistake?

- ☐ Was it big (major)?
- ☐ Or was it small (minor)?

## 3. **HOW OFTEN** did you see the same defect, or mistake in a particular manoeuvre?

How many defects were there in **TOTAL**?

## 4. Was **the Flying Speed constant** in climbing and descending parts of the manoeuvre?

## 5. WHAT WAS **THE POSITIONING** of the manoeuvre?

## 6. WHAT WAS THE **SIZE** of the manoeuvre?

## 7. Was the manoeuvre **partially or completely outside** of the manoeuvring zone?

All manoeuvres should be executed with:

Geometrical Accuracy

Constant Flying Speed

Correct positioning within the manoeuvring zone

Size matching to the size of the manoeuvring zone

Judging is based on the trajectory of the aircraft's centre of gravity rather than its attitude. Manoeuvres must be wind corrected except where the aircraft is in a stalled condition (Spins, Stalls and Snaps).

Criteria for judging:

1. Type of defect
2. Severity of defect
3. The number of times any one defect occurs, as well as the total number of defects.
4. Positioning of manoeuvre and size relative to other manoeuvres in the flight

Basic rule is to deduct 1 point for 15 degrees variation from defined manoeuvre geometry, but 0.5 points only for half of this. Lines should be judged more harshly than deviations in yaw or roll.



Defect	Downgrade
For significant differences in Constant Flying Speed	0.5 - 1
Sizing different relative to other manoeuvres in the flight	0.5 - 1
<b>Positioning</b> - <i>Appropriate distance out should be based on visibility of aircraft</i>	
Manoeuvre not centred (per 15 degrees)	0.5 - 4
More than 175m out (visibility is the criterion)	1
Greater than 200m out	2 - 3
Outside 60 degree markers, further out is worse (based on % out of box)	1 - 10
<b>Lines</b>	
Length of lines not graded	No deduction
Manoeuvre doesn't start and end with a horizontal line	1 per manoeuvre
Mis-relationship between lines	0.5 or more
Rolls not centred on lines (except Split S and Immelmann)	0.5 - 2
No line before/after roll (except Split S and Immelmann)	3
<b>Loops</b>	
Radius (Compare each radius that was just flown to the last radius flown) (e.g. All loops or part loops within a manoeuvre must have the same radius)	0.5 – 2 or more for each occurrence
Segmentation (Every segmentation must be down graded)	0.5 or more
Departure from vertical plane	0.5 or more
Part loops must not be too tight or too loose (Too tight or too loose must be downgraded)	0.5 - 1
Turn-arounds are positioning manoeuvres. Entry/exit altitude can be different heights	No deduction
<b>Rolls</b>	
Variation in roll rate	0.5 or more
Slowing down / speeding up at end of roll	1 per 15 degrees
Start or stop not crisp (Each occurrence)	0.5 or more
Not centred on lines (except Split S and Immelmann)	0.5 - 2
No line before/after roll (except Split S and Immelmann)	3

Change in pause length within point rolls	0.5 or more per occurrence
Missed or extra point in point roll(s)	1 per 15 degrees
Roll or part-roll in wrong direction	Zero scored

### **Roll/Loop Combinations**

For Immelmann & Split S, roll not immediately before/after loop or part loop	0.5 - 2
For Immelmann, roll starts before loop or part loop completed	1 per 15 degrees
On Cuban 8's or half Cubans, rolls must be centred on lines	0.5 - 3
Humpty Bumps must have consistent radii in all part loops	0.5 - 3
Integrated rolls or part rolls not smooth and continuous and correctly integrated	1 per 15 degrees

**Snap Rolls** - *Use same basic judging criteria as axial rolls above. If it's not an axial or barrel roll, it's a snap roll*

Attitude (positive or negative) at pilot's discretion	No deduction
Stall/break from line of flight not observed and barrel rolls	Severe (5+)
Axial roll disguised as a snap	Severe (5+)
Aircraft un-stalls during snap	1 per 15 degrees

**Spins** - *Nose up attitude, nose drops as aircraft stalls. Simultaneously, wing drops in direction of spin*

Gain in altitude prior to spin	1 per 15 degrees
Severe yawing/weathercocking when near stalled	1 per 15 degrees
Drift when stalled or near stalled (not outside aerobatic zone)	No deduction
No stall, snap rolled, or spiral-dived into spin	Zero scored
Slides into spin	1 per 15 degrees
Forcing spin in opposite direction on initial rotation	Severe (5+)
Forcing spin from high angle of attack with down or up elevator	4 - 5
Conditions (e.g., no wind) may mean aircraft does not completely stop	No deduction
Rotation errors judged in same manner as rolls	1 per 15 degrees
Reversal of rotation not immediate (e.g., becomes un-stalled)	Severe (5+)
Roll rate in reversal significant (slight difference ok)	1
Unloading spin (e.g., finishing spin with ailerons)	1 per 15 degrees
Specific attitude of aircraft during spin not judged as long as it remains stalled	No deduction
No visible vertical line following rotation(s)	1

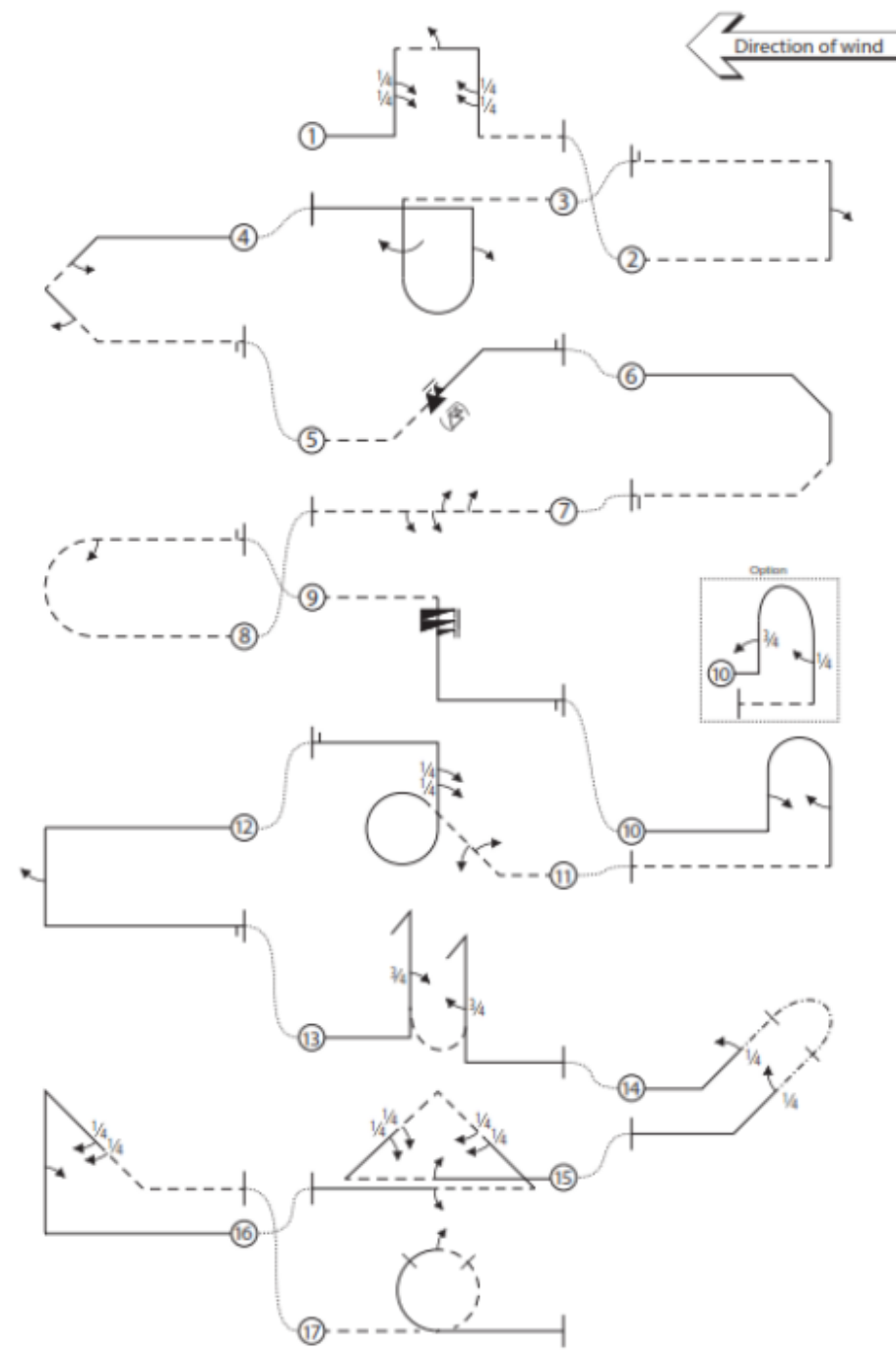
### **Stall Turns**

Pivot up to ½ wingspan	1
Pivot up to 1 wingspan	2 - 3
Pivot >1½ wingspans	4 - 5
Pivot >2 wingspans or flops over	Zero scored
Torques off	1 per 15 degrees
Pendulum movement after pivot	1
Skid before reaching stall turn (early rudder)	1
Drift when stalled or near stalled (not outside aerobatic zone)	No deduction
Part loops on entry/exit not constant and equal radius	0.5 - 3

### **Rolling Circles** - *Mainly about maintaining consistent circular flight path, altitude, roll rate and roll integration (Apply same rules as per rolls)*

150m distance requirement not applied. Deduct where >350m	1 - 3
Deviations in geometry	1 per 15 degrees
Either performed towards or away from judges	No deduction
Roll or part roll in wrong direction	Zero scored

# PRELIMINARY SCHEDULE P-23 (2022-2023)



1. The flight path of rolls that are integrated with loops or horizontal circles should be smooth, continuous, and of constant radius. Where an integrated roll is required, how should quick-rolling be downgraded?

0 points (ignore the barrel roll) <input type="checkbox"/>	Downgrade by the one point/15 degree rule <input type="checkbox"/>
1 point <input type="checkbox"/>	Severe downgrade (more than 5 points) <input type="checkbox"/>
2-3 points <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>

8 points: Ignores the barrel roll rule (1)	Downgrade by the one point 15 degree rule (1)
6 points (1)	Downgrade (more than 2 points) (1)
0-4 points (1)	Zero the maneuver (1)

5B.8.10 - Flight paths of continuous rolls or part-rolls that are integrated with loops or horizontal circles should be smooth, continuous, and of constant radius. Where an integrated roll is required, quick-rolling should be downgraded using the 1 point per 15 degree rule.



2. The general guide for downgrading deviations from defined manoeuvre geometry is to subtract:

1 point for each approximate 15 degree deviation, but  
0.5 points only for half of this ☐

1 point for each approximate 5 degree deviation, but  
0.5 points only for half of this ☐

2 points for each approximate 45 degree deviation, but  
1 point only for half of this ☐



# 1 POINT PER 15° DEVIATION

1 point must be subtracted for each approximate 15 degrees deviation, but 0.5 points only for half of this.

Perfect geometry =  
No downgrade

Wings  
level -  
roll axis



Horizontal  
lines -  
pitch axis



Approximate 15°  
deviation =  
1 point downgrade



Approximate 30°  
deviation =  
2 points downgrade



Approximate 45°  
deviation =  
3 points downgrade





# 1 POINT PER 15° DEVIATION

Perfect geometry =  
No downgrade

Approximate 15°  
deviation =  
1 point downgrade

Approximate 30°  
deviation =  
2 point's downgrade

Approximate 45°  
deviation =  
3 points downgrade

Vertical  
lines -  
pitch  
axis

Vertical  
lines -  
yaw  
axis



0.5 point downgrade for approximated 7.5 deviation,  
1.5 points downgrade for approximate 22.5 deviation, ...



1 point for each approximate 15 degree deviation, but
0.5 points only for half of this.
1 point for each approximate 2 degree deviation, but
0.5 points only for half of this.
1 point for each approximate 15 degree deviation, but
0.5 points only for half of this.

5B.8.2 - 1 point must be subtracted for each approximate 15 degrees deviation, but 0.5 points only for half of this.

3. The length of a line should be considered in the score if:

The model is under-powered and the manoeuvre is flown with short lines ☐

The model draws long lines throughout the manoeuvre ☐

There are several lines with a given relationship within a manoeuvre ☐



# LINES

**5B.8.3 All aerobatic manoeuvres are entered and exited by a horizontal line of recognisable length.**

**When no horizontal line is flown between two manoeuvres, the just-completed manoeuvre must be downgraded by 1 point and the upcoming manoeuvre must be downgraded by 1 point.**

**All lines within a manoeuvre have a start and an end which define their length. They are preceded and followed by part loops (or part circles).**

**The length of a line should only be graded when a manoeuvre contains more than one line with a given relationship to each other ie as in a square loop.**

**If there is a minor deviation in the relationship then 0.5 point is subtracted, and more points are subtracted for greater deviations.**



The model is under-generated and the manoeuvre is  
given with short lines (1)  
The model shows long lines throughout the manoeuvre  
(2)  
There is no general line with a given relationship within  
a manoeuvre (3)

5B.8.3 - The length of a line should only be graded when a manoeuvre contains more than one line with a given relationship to each other ie as in a square loop.

4. The length of a line within a manoeuvre should only be graded when a manoeuvre contains more than one line with a given relationship to each other. Eg: As in a square loop. Minor deviations should be penalised by the subtraction of:

0 points <input type="checkbox"/>	3 points <input type="checkbox"/>
0.5 point <input type="checkbox"/>	4-5 points <input type="checkbox"/>
1 point <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>
2 points <input type="checkbox"/>	



# LINES

**5B.8.3 All aerobatic manoeuvres are entered and exited by a horizontal line of recognisable length.**

**When no horizontal line is flown between two manoeuvres, the just-completed manoeuvre must be downgraded by 1 point and the upcoming manoeuvre must be downgraded by 1 point.**

**All lines within a manoeuvre have a start and an end which define their length. They are preceded and followed by part loops (or part circles).**

**The length of a line should only be graded when a manoeuvre contains more than one line with a given relationship to each other ie as in a square loop.**

**If there is a minor deviation in the relationship then 0.5 point is subtracted, and more points are subtracted for greater deviations.**

1 point (1)	1 point (1)
2 point (2)	2 point (2)
3 point (3)	3 point (3)
4 point (4)	4 point (4)

5B.8.3 - If there is a minor deviation in the relationship then 0.5 point is subtracted, and more points are subtracted for greater deviations.

## 5. What determines the radius required for loops and part-loops within manoeuvres?

All radii throughout the entire flight must be the same



The distance of the model from the pilot



The radius of the first loop or part-loop within a manoeuvre



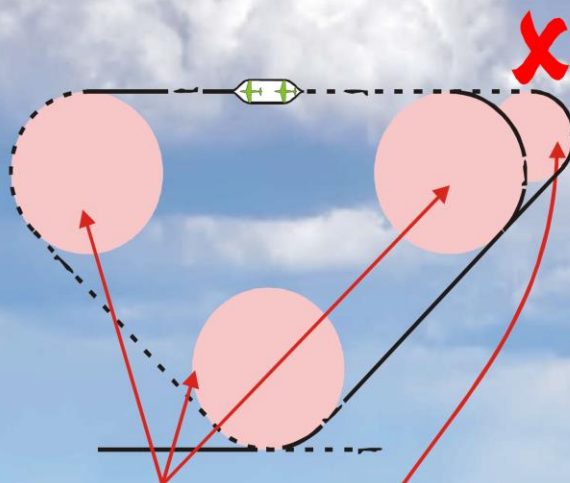
As the manoeuvre progresses, the judge will compare each radius that was just flown to the last radius flown





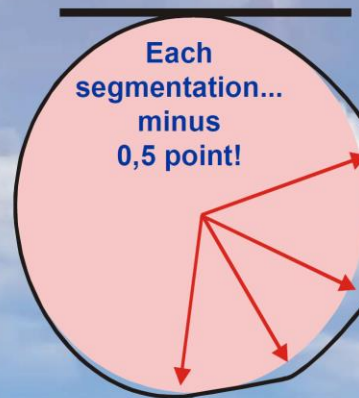


# LOOPS

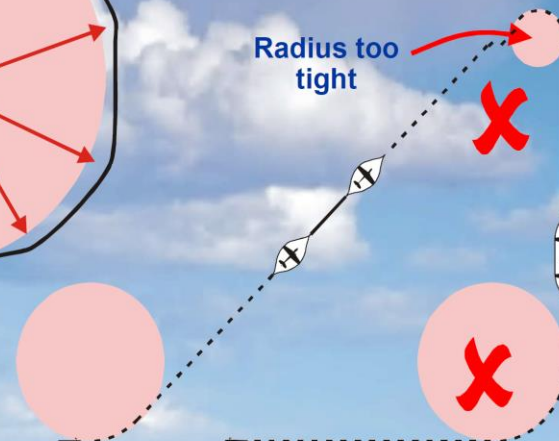


All part-loop  
radii equal.  
Minor mis-relation...  
minus 0,5 point!

This = minus 2 points!



Radius too  
tight



The first radius of a manoeuvre does not define the radii for the remaining radii of a manoeuvre but it is a starting point. As the manoeuvre progresses, the judge will compare each radius that was just flown to the last radius flown and if there is a difference, then a downgrade will be given based on the severity of the difference.



at all. Throughout the entire fight, must be the same  
[]  
The distance of the model from the pilot []  
The radius of the first loop or path loop within a  
manoeuvre []  
As the manoeuvre progresses, the judge will compare  
each radius that was just flown to the last radius flown  
[]

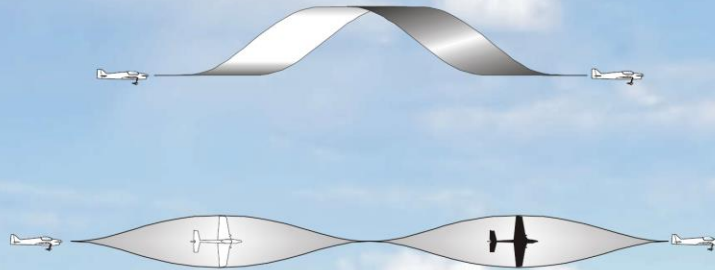
5B.8.4 - The first radius of a manoeuvre does not define the radii for the remaining radii of a manoeuvre but it is a starting point. As the manoeuvre progresses, the judge will compare each radius that was just flown to the last radius flown and if there is a difference, then a downgrade will be given based on the severity of the difference.

6. What downgrade would you apply where a pilot performs a fast axial roll where a snap-roll is required?

0 points <input type="checkbox"/>	3 points <input type="checkbox"/>
1 point <input type="checkbox"/>	Severe downgrade (more than 5 points) <input type="checkbox"/>
2 points <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>



**Barrel roll or axial roll instead of  
snap roll:  
downgrade more than - 5 points**



1 point (1)	1 point (1)
1 point (1)	Severe downgrades (more than 2 points) (2)
1 point (1)	Severe downgrades (2)

5B.8.7 - Axial rolls disguised as snap-rolls must be severely downgraded (more than 5 points)

7. What penalty is applied for a 30 degree over-rotation on a slow roll?

0 points <input type="checkbox"/>	3 points <input type="checkbox"/>
1 point <input type="checkbox"/>	30 points <input type="checkbox"/>
2 points <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>





# 1 POINT PER 15° DEVIATION

1 point must be subtracted for each approximate 15 degrees deviation, but 0.5 points only for half of this.

Perfect geometry =  
No downgrade

Wings  
level -  
roll axis



Horizontal  
lines -  
pitch axis



Approximate 15°  
deviation =  
1 point downgrade



Approximate 30°  
deviation =  
2 points downgrade



Approximate 45°  
deviation =  
3 points downgrade





1 point (1)	1 point (1)
1 point (1)	1 point (1)
1 point (1)	1 point (1)
1 point (1)	1 point (1)

---

5B.8.2 - 1 point must be subtracted for each approximate 15 degrees deviation, but 0.5 point only for half of this.

5B.8.12 - ...the stop of rotation is judged in the same manner as for a roll, downgraded 1 point per 15 degree deviation of heading.

8. What penalty is applied for a slight variation in the line length between points in a point roll?

0 points <input type="checkbox"/>	3 points <input type="checkbox"/>
0.5 point <input type="checkbox"/>	4-5 points <input type="checkbox"/>
1 point <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>
2 points <input type="checkbox"/>	

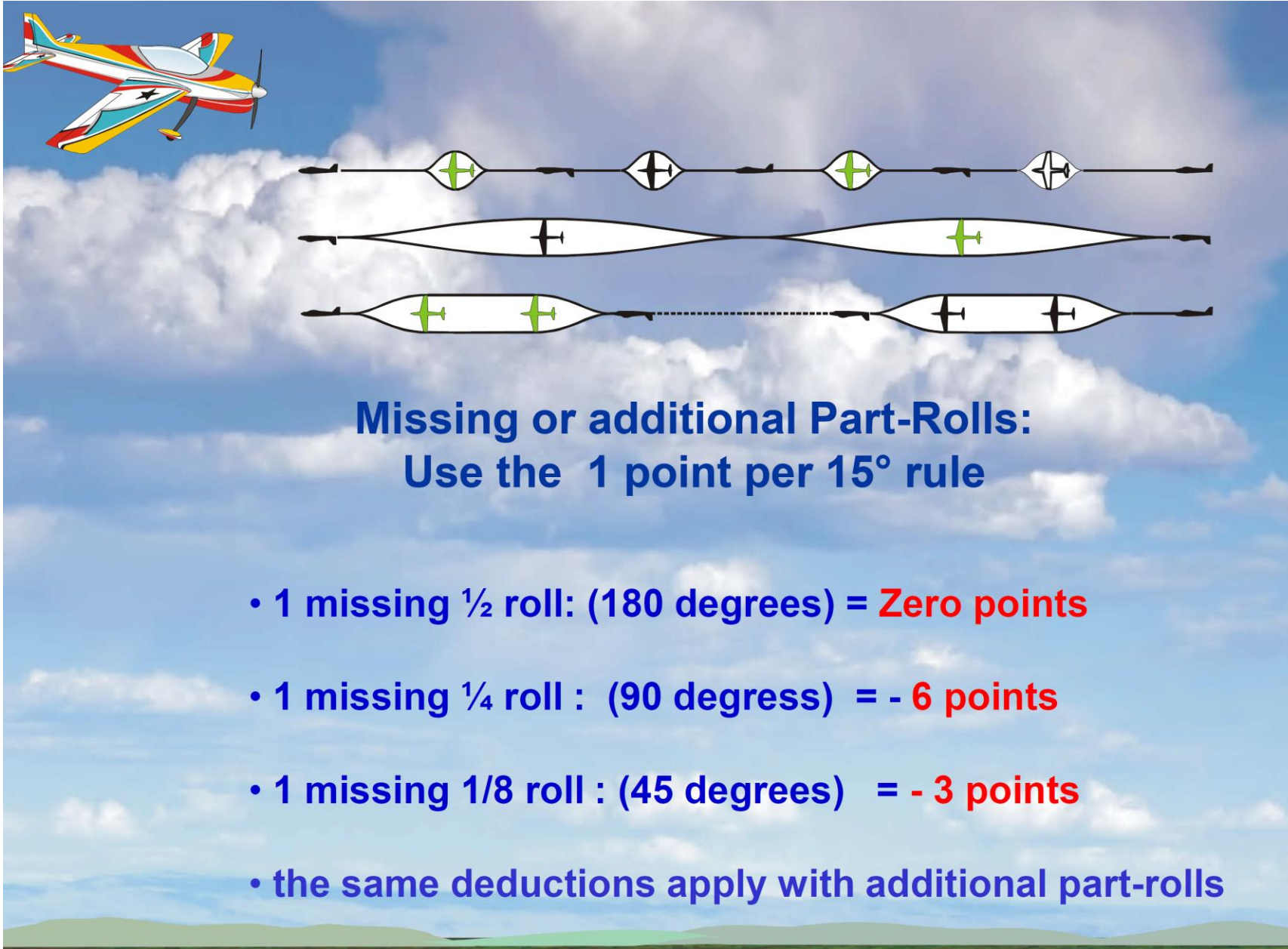
1 point (1)	1 point (1)
2 points (2)	2 points (2)
3 points (3)	3 points (3)
4 points (4)	4 points (4)
5 points (5)	5 points (5)
6 points (6)	6 points (6)
7 points (7)	7 points (7)
8 points (8)	8 points (8)
9 points (9)	9 points (9)
10 points (10)	10 points (10)

5B.8.5 e) - Lines between consecutive part-rolls must be short and of equal length.

5B.8.3 - The length of a line should only be graded when a manoeuvre contains more than one line with a given relationship to each other ie as in a square loop. If there is a minor deviation in the relationship then 0.5 point is subtracted, and more points are subtracted for greater deviations.

9. What penalty is applied where one or more points in a point roll is not visible?

0 points <input type="checkbox"/>	Severe downgrade (more than 5 points) <input type="checkbox"/>
1 point <input type="checkbox"/>	Downgrade by the one point/15 degree rule (based on the initial rotation) <input type="checkbox"/>
2 points <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>
3 points <input type="checkbox"/>	



**Missing or additional Part-Rolls:  
Use the 1 point per 15° rule**

- 1 missing  $\frac{1}{2}$  roll: (180 degrees) = **Zero points**
- 1 missing  $\frac{1}{4}$  roll : (90 degrees) = **- 6 points**
- 1 missing  $\frac{1}{8}$  roll : (45 degrees) = **- 3 points**
- the same deductions apply with additional part-rolls



1 point(s)	Answer is: How many rolls remain after 2 points?
1 point(s)	Answer is: 15. The rule is: 1 point per 15 degrees.
1 point(s)	Answer is: 15. The rule is: 1 point per 15 degrees.
1 point(s)	Answer is: 15. The rule is: 1 point per 15 degrees.

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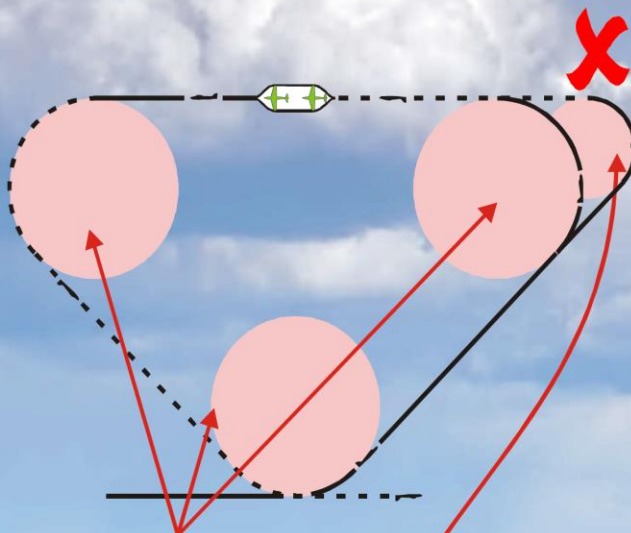
5B.13 - no stop/line between [point rolls] = 1 point per 15 degrees

10. What penalty is applied where there is a difference in radii between loops or part-loops within a manouver (per occurrence)? (Note: Check all correct answers)

0 points <input type="checkbox"/>	Severe downgrade (more than 5 points) <input type="checkbox"/>
1 point <input type="checkbox"/>	Downgrade by the one point/15 degree rule (based on the initial rotation) <input type="checkbox"/>
2 points <input type="checkbox"/>	Zero the manoeuvre <input type="checkbox"/>
3 points <input type="checkbox"/>	

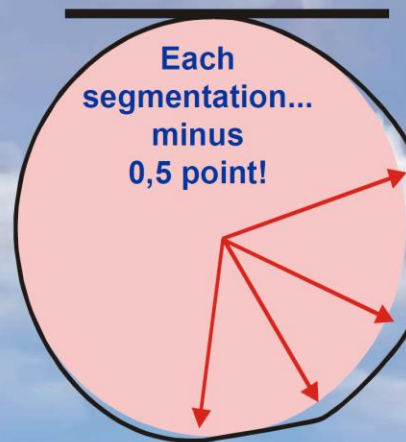


# LOOPS



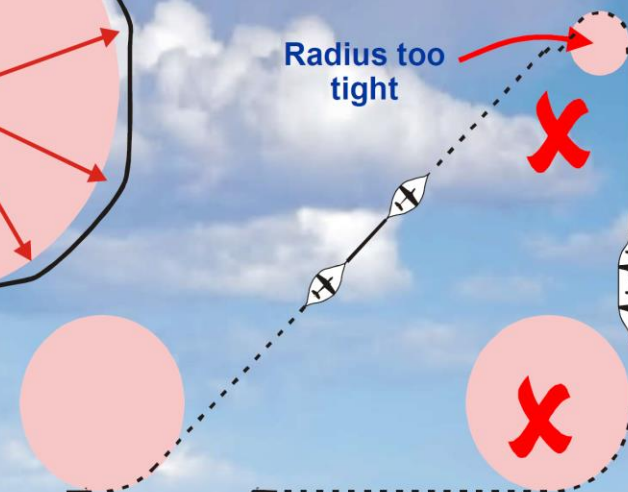
All part-loop  
radii equal.  
Minor mis-relation...  
minus 0,5 point!

This = minus 2 points!



Each  
segmentation...  
minus  
0,5 point!

Radius too  
tight



The first radius of a manoeuvre does not define the radii for the remaining radii of a manoeuvre but it is a starting point. As the manoeuvre progresses, the judge will compare each radius that was just flown to the last radius flown and if there is a difference, then a downgrade will be given based on the severity of the difference.

1 point (1)	Reverse: Heavy: with reverse: 1.5
0.5 point (1)	Downgrade by the one point (1) degree rule (based on the initial rotation) (1)
0.5 point (1)	Downgrade the manoeuvre (1)
0.5 point (1)	

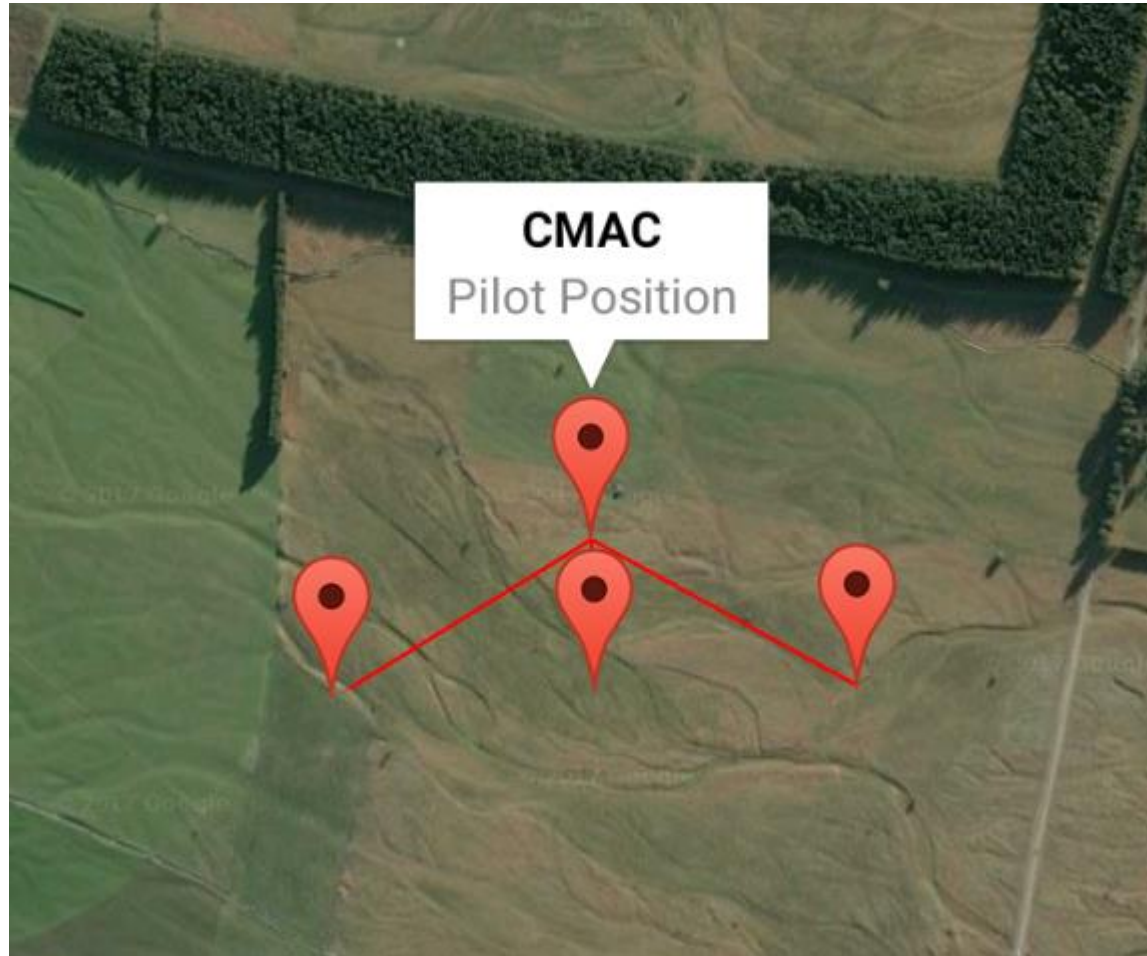
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5B.8.4 - Each occurrence of a minor difference in radius must downgrade the manoeuvre by 0.5 point, while more severe deviations may downgrade it by 1, 1.5, 2 or more points for each occurrence.

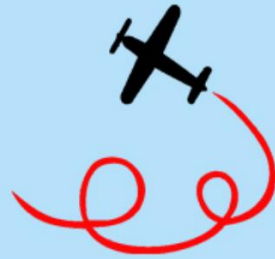
What Tools are out there to Help with Judging  
(and Flight Training)?



# F3A Zone Pro (iOS and Android)



F3A Zone Pro on Android also lets you easily walk out to the flight line (in a safe position) and see who is flying at 150-165m (and who is not!) – this is great for gaining an appreciation of where we should be flying.



## Flight Coach

Your Radio Control Flight Geometry Companion

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### Home

The Flight Coach Project develops data driven tools for precision aerobatic pilots and judges with the aim of making the sport more objective. The project was started by a group of keen F3A and IMAC competitors, but the work is also applicable to other RC and full size aerobatic disciplines.

Most of our work involves installing inexpensive GPS and attitude tracking hardware in the aircraft, then post processing the data on the ground to provide feedback. All the Flight Coach project outputs are free to use (see specific license details in Instructions/Software).



File: Generated P23.json  
Origin: 0, 0, 6.03  
Pilot: 0.0, 0.0, 0.00  
Center: 0.0, 0.0, 0.00  
Total time: 0m0s  
Tkooff-Last: 0m0s  
SW: v2.0.44H/v2.0.44H

☒ Views

Settings

↑ Judge

↓ Top

→ Left

← Right

↕ Mid

↓ Load BIN

↓ Open JSON

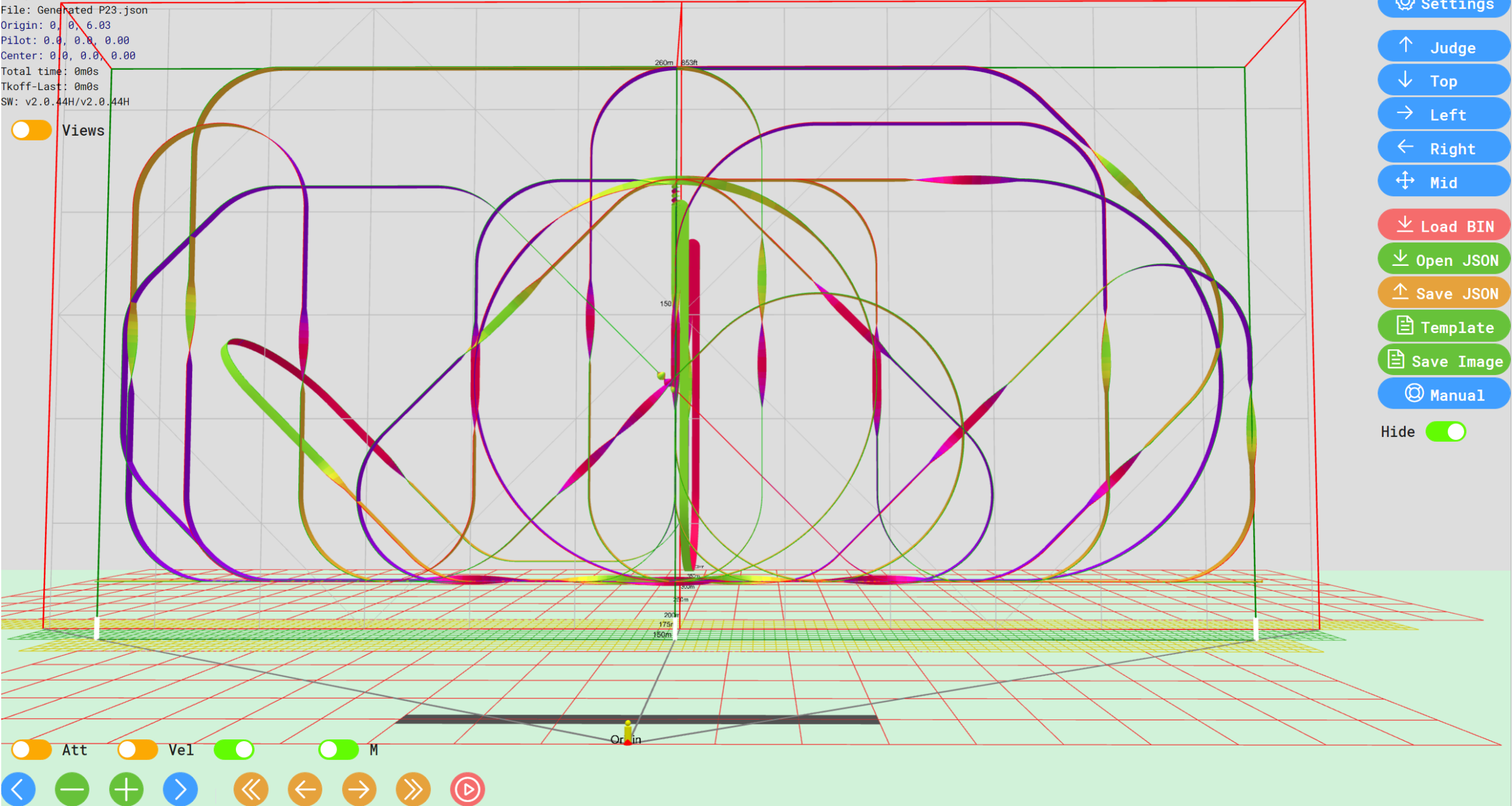
↑ Save JSON

📄 Template

📄 Save Image

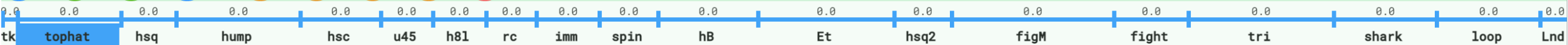
ⓘ Manual

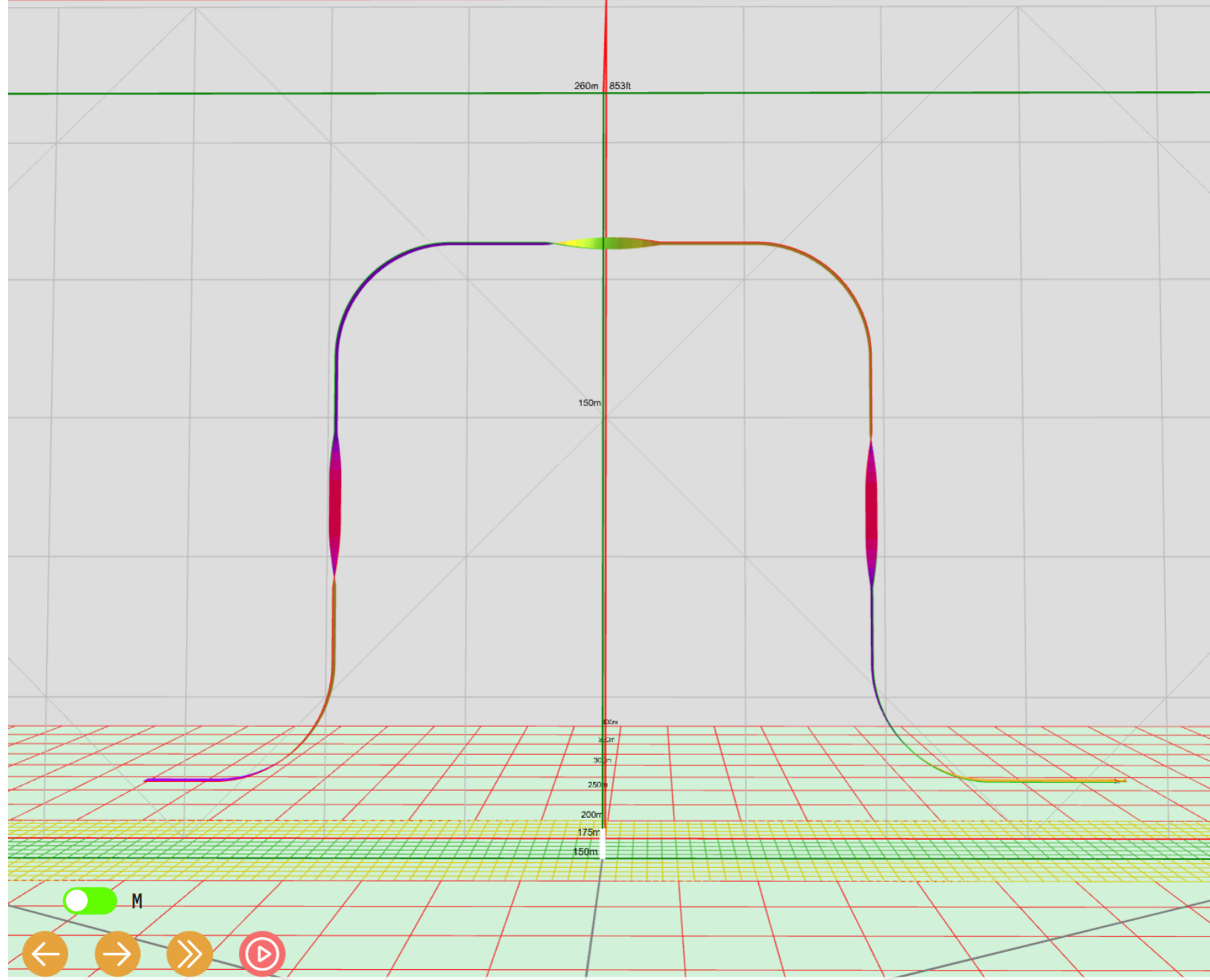
Hide ☒



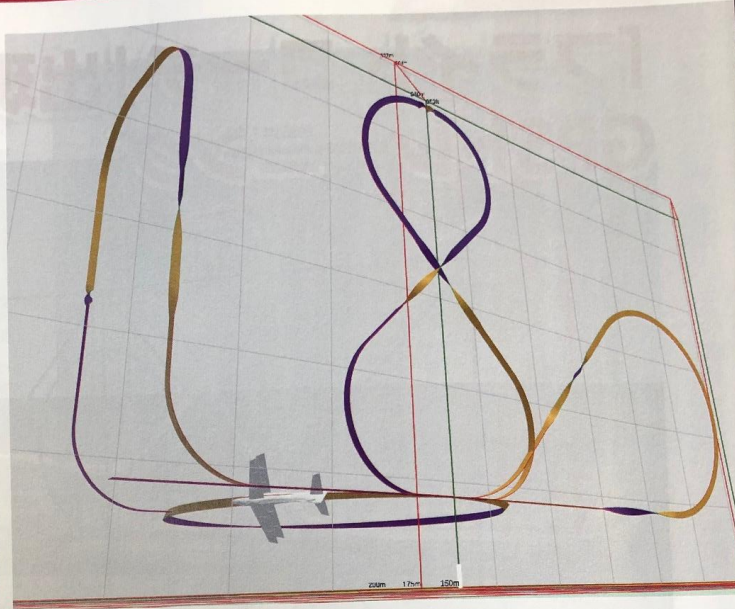
☒ Att ☒ Vel ☒ M

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## 「フライト コーチ」開発者からのメッセージ

オーストラリアを代表するF3Aフライヤーや技術者が中心となって開発した、飛行軌跡の3D可視化技術と、それを司るアプリケーションの名称が「フライト コーチ」です。今回、その開発チームより本誌にメッセージが届きました。彼らのサイトへのアクセスは自由とのことなので、ぜひチャレンジしてみてください。



<https://www.flightcoach.org>



<https://www.flightcoach.org/template-flights/>

### ●日本のフライヤーに向けて●

F3Aの飛行は難しく、正確かつ優雅に飛行することはさらに困難です。吉岡さん、成家さん、秋葉さん、鈴木さん、八田さん、音田さん(そして、もちろんもっと多くの!)のような日本の偉大なF3Aパイロットに秘訣をたずねたら、きっと「コーチや指導者からの評価やアドバイスを従って、何千回もフライトしましょう」という共通する返事が聞かれそうです。しかし、指導者なしで自分の飛行を正確に評価できますか？ または、あなたとあなたの指導者が飛行について意見が一致しない場合はどうなりますか？ 私たちが開発したシステムは、低コストで簡単に入手できるハードウェアを使用し、パイロットが飛行場での練習中、または帰宅後快適な自宅で飛行の出来映えを客観的に評価するためのツールを提供します。

Flight Coachは、英国のIMACおよびF3AのトップパイロットであるThomas Davidのアイデアから始まりました。GPS、安価なマルチローター飛行制御ボード、そして独自のコンピューター分析ツールを融合すれば、指導の支援に有用な飛行分析ができないか？ 答えは確かにイエスでした！ もちろん、そのようなプロジェクトの実現は複雑で容易ではありません。オーストラリアのF3AパイロットであるArtur Uziebloは、幅広い知識とプログラミングスキルを持って参加しました。 Andrew Palmer(ニュージーランドF3Aパイロット)はアイデアを整理し、ハードウェア・システムを開発しました。 Russell Edwards(オーストラリアのF3Aパイ

ロット)はシステムテストに寄与し、プロッターのマニュアルを作成しました。

中心となるのは、GPSベースの測位を拡張した慣性航法システムです。高度なセンサーフュージョン・アルゴリズムにより毎秒15〜25ポイントのスムーズで正確な飛行経路と姿勢のログを提供します。これは一般的なGPSのみのシステムでの姿勢情報なしで1秒あたり1〜2点だけのものとは比べ物になりません。データはmicroSDカードに記録されます。そして、無料で使用できるWebブラウザベースのFlight Coachソフトウェアが、飛行後の分析を提供します。フライト コーチ・システムはF3Aの難しさを取り除くことはできませんが、機体の飛行経路に関する客観的なデータを提供し、飛行後の分析を可能にすることで、貴重なトレーニングの支援を提供します。

実はハードウェアは、ログに膨大な数のパラメーターを記録しています。現在、Flight Coachはそのうちのいくつかのみを使用しています。これは将来のバージョンで

拡張され、パイロットがより多くの情報を利用できるようになる可能性もあります。機体位置での風向、迎え角と横滑り、対気と対地速度、G力などの推定を含める可能性があります。

日本の皆さんがフライト コーチ・システムを体験できることを願っています。練習に時間と労力を費やせば、それだけ飛行の改善に役立つと確信しています。

Andrew Palmer (訳/佐々木 哲)



# Ardupilot Autonomous Aerobatics Project

<https://www.youtube.com/watch?v=MmUDC3A7Ntk>

YouTube <sup>NZ</sup>

Search

## ArduPilot Aerobatics

The aerobatic 'box'



- 150m out from origin
- 60 degrees either side of centre
- 60 degrees high

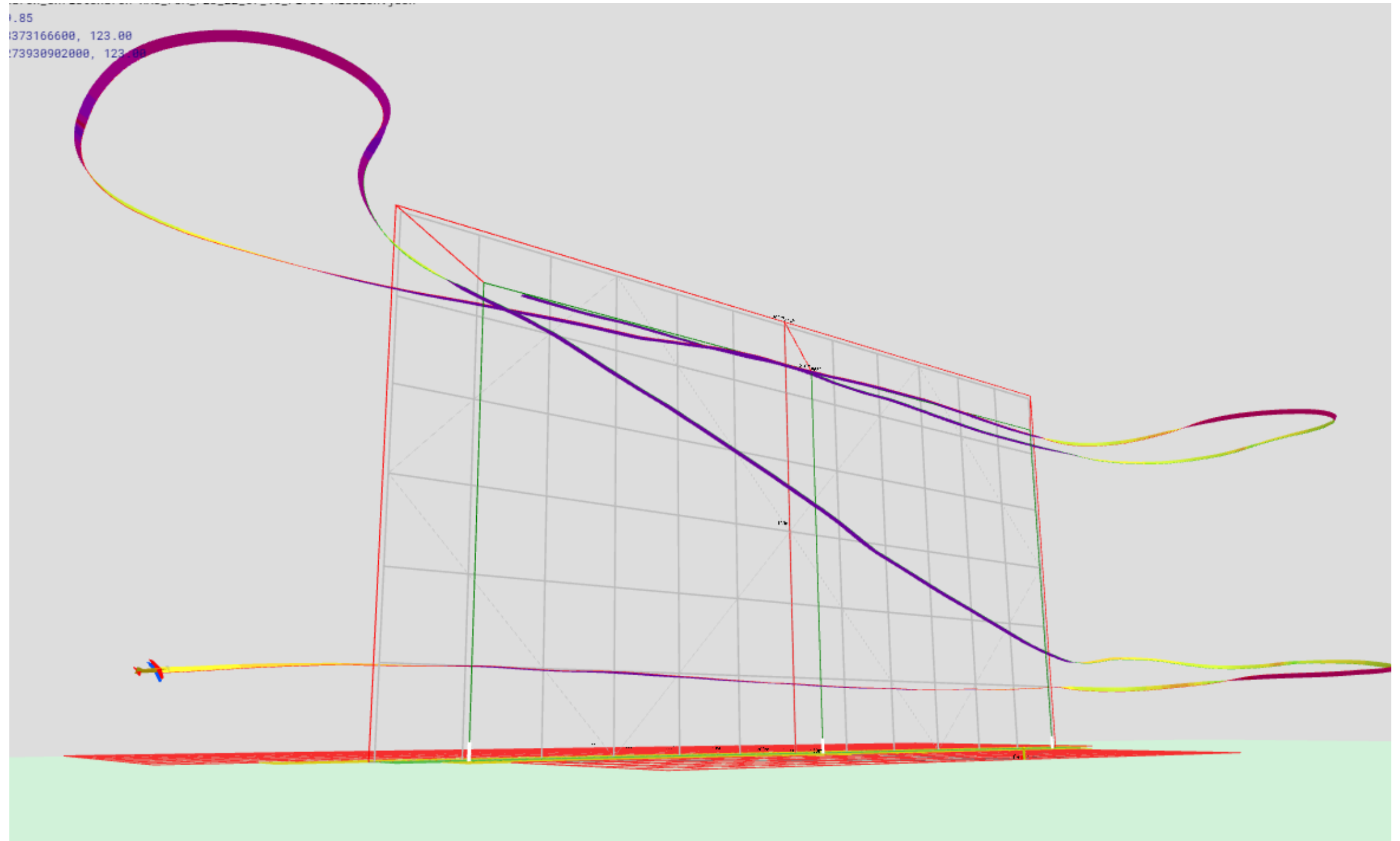
Can we fly this path autonomously?

(not with current code)

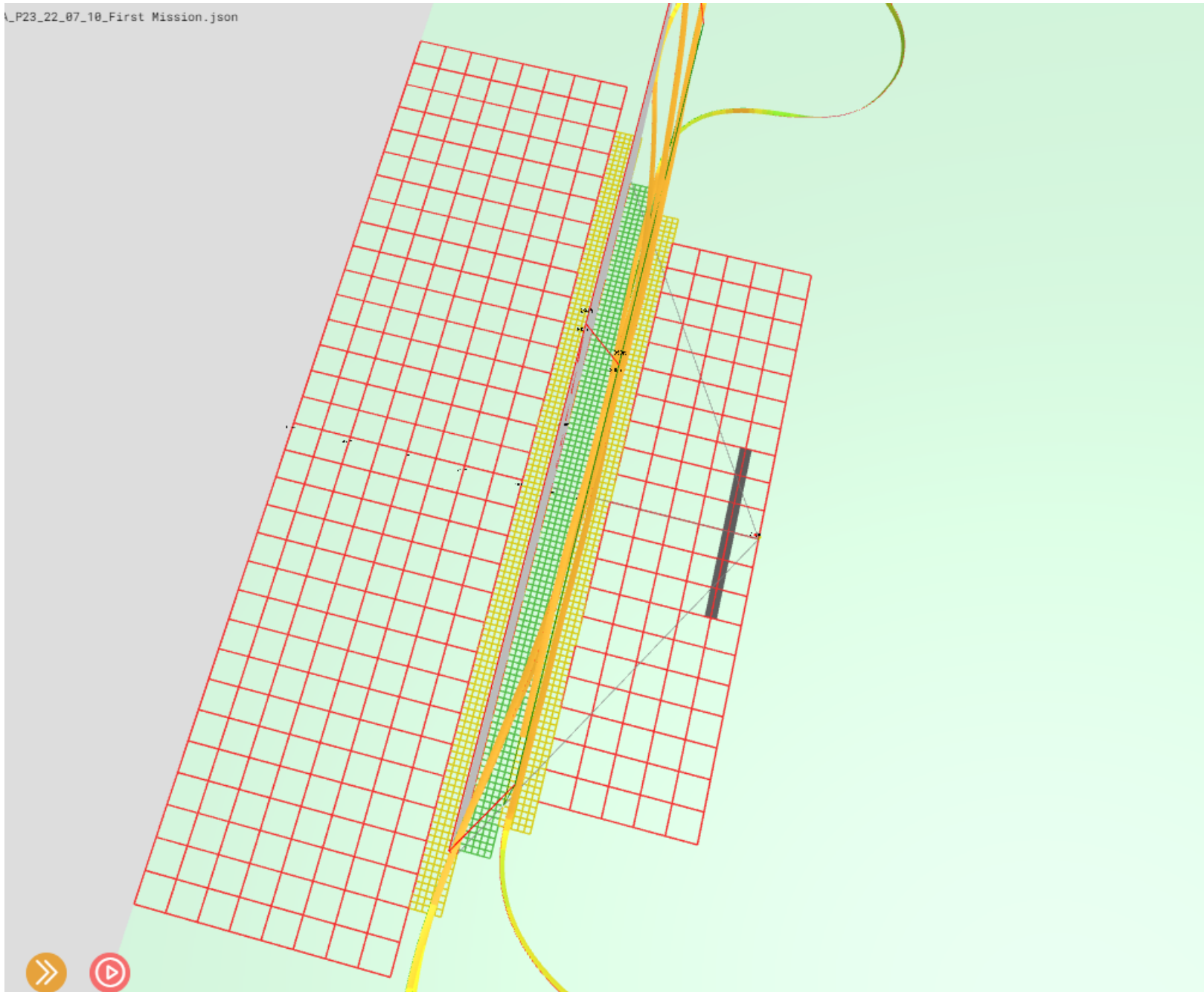
zoom

9:12 / 3:35:43

1.85  
373166600, 123.00  
73930902000, 123.00



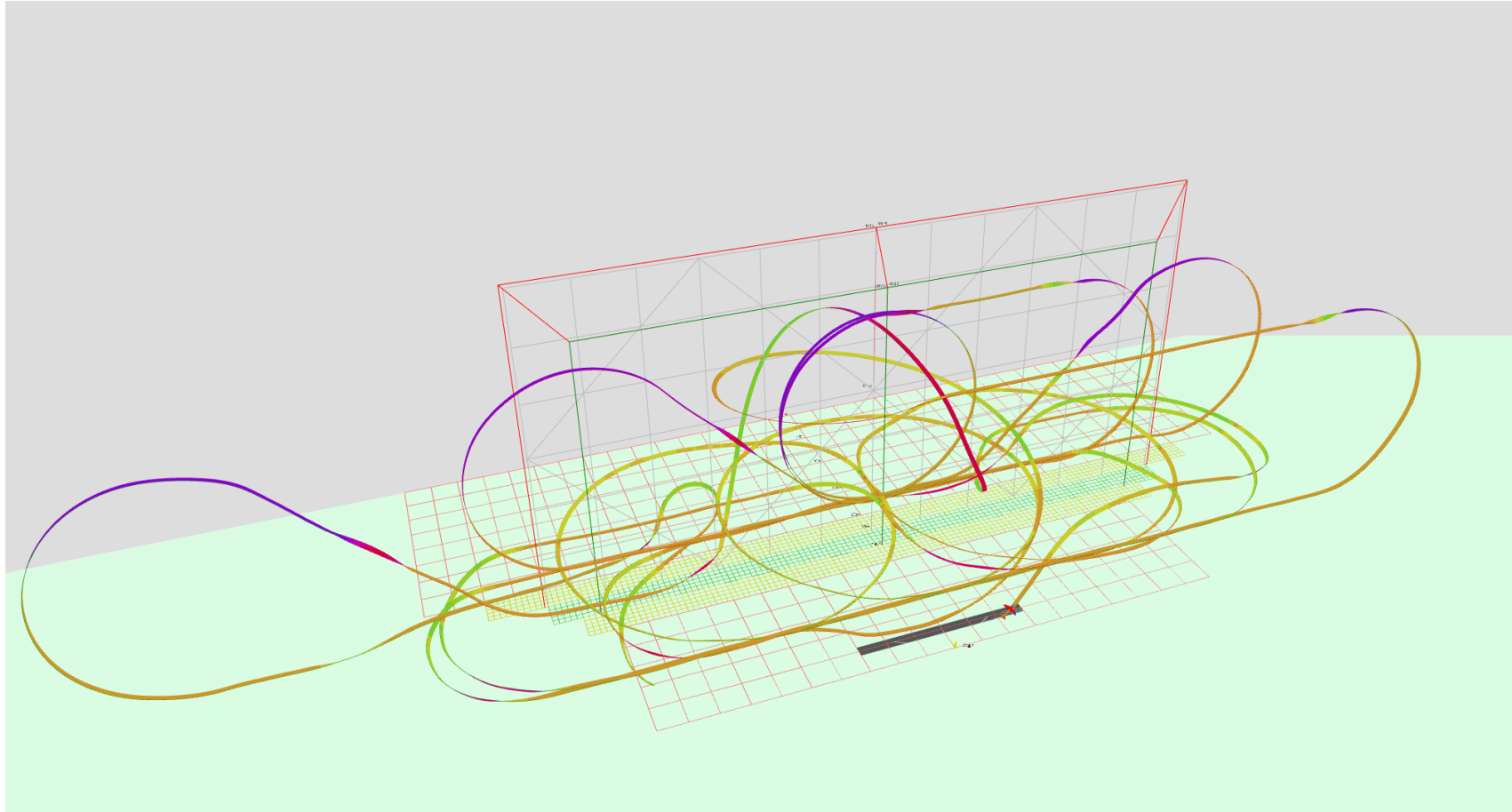
\_P23\_22\_07\_10\_First Mission.json





# Autonomously Flown Scale Schedule

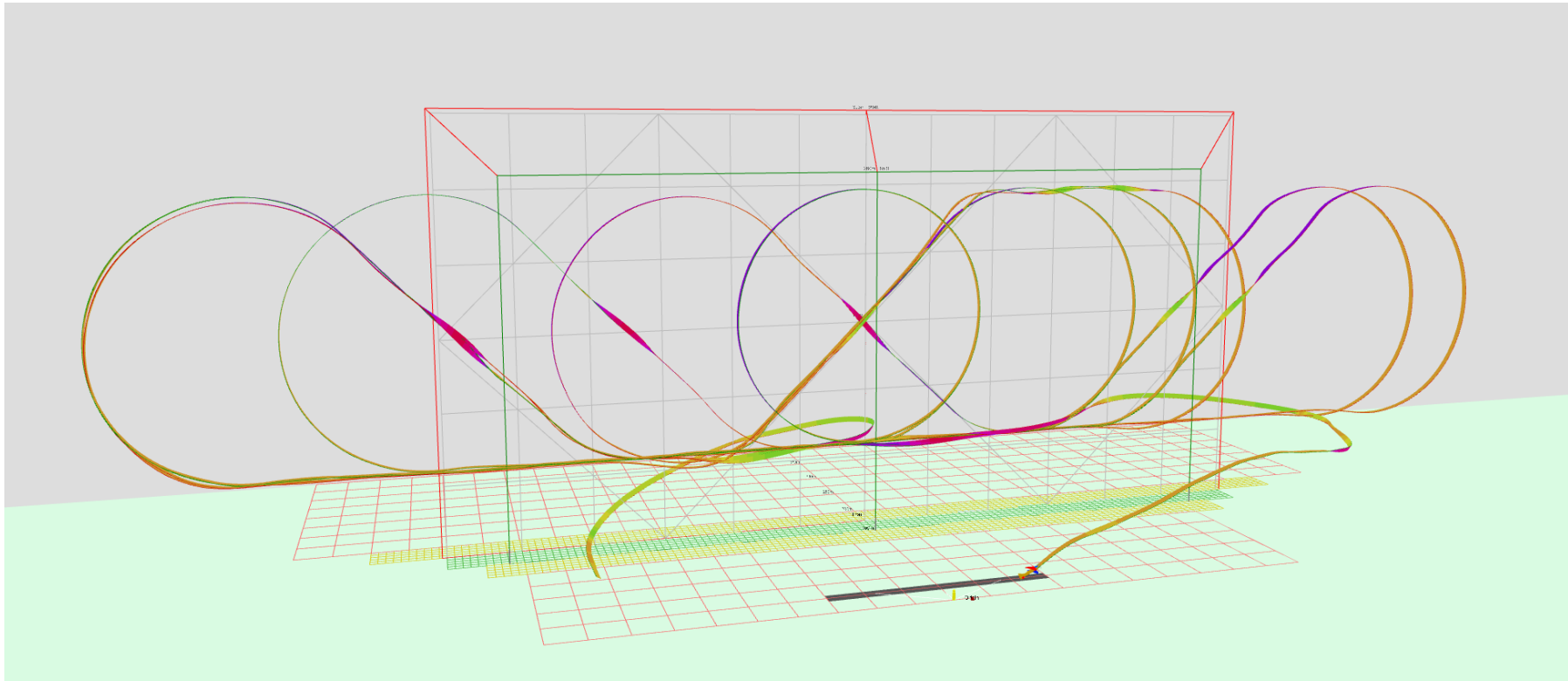
(using a Galactik 2m F3A model)





# Autonomously Flown NZ Clubman Schedule

(No Stall Turn – yet)



F3A P-23 – coming soon!



# ROLL TRAINER

By Knife Edge Software

START

Roll  
1/4

Score

No Attempts

START OVER

SHOW DETAILS



How much error do you see?

0

5

10

15

20

25

30

35

40

45

Any Questions?

