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**Rules for Semi-Scale Control Line Models**  
2016

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## 1. Scope Validity

These rules are binding for Control Line semi-scale contests in Switzerland.

## 2. Eligibility for Participation

Anyone is eligible for participation. Proof of liability insurance must be presented at time of on-site registration. A valid member card of the Swiss Aero Club and of SMV is considered as certificate of insurance.

## 3. Models and Pilots admitted

Admitted are Control Line model airplanes as per these rules. The total displacement of IC motors used in a particular model may not exceed 15 ccm (2-cycle) or 20 ccm (4-cycle). Where electric propulsion systems are used, the voltage of the battery(-ies) may not exceed 45 VDC. The model must take off self-propelled from the ground. The participant must not be the builder of the model.

The outside shape of the model must be based on a man carrying real airplane.

In general, the model is flown by its builder/owner. Under exceptional circumstances, such as medical reasons, a model can be flown by another pilot carrying liability insurance as per article 2. The use of helpers assisting the operation of the model from outside of the flying circle is not permitted.

## 4. Lines Length and Pull Test

The length of the control lines, measured from the centre of the handle to the centre axis of the model, must be not less than 13 metres and not more than 21.5 metres. Organisers may reduce the maximum length of lines when publishing invitations to participate.

The handle must be equipped with a safety strap to be worn around the pilot's wrist during all taxi and flight operations.

The model, the handle, the lines and the safety strap must undergo a pull test of not less than five (5) times the weight of the model (with battery(-ies), without fuel). The test load may not exceed 25 Kgs.

## 5. Model Specifications

Max. displacement of all 2-cycle motors installed: 15 cm<sup>3</sup>

Max. displacement of all 4-cycle motors installed: 20 cm<sup>3</sup>

Max. weight, incl. battery(-ies), without fuel: 7 Kgs

Max. battery(-ies) voltage, measured under no load: 72 VDC

All propulsion systems must be capable of efficient throttle operation.

IC motors must be equipped with efficient silencers. For the purpose of static judging, silencers visible from the outside are considered as being not installed.

For the operation of systems other than the elevator, the use of 2.4 Ghz remote control systems by the pilot is permitted.

## 6. Contest Judging and Final Ranking

Semi-scale contests consist of one static and up to three judged flying rounds. For classification purposes, the weight of the flight judging shall be three times the weight of the static judging.

The final ranking is made from the addition of the average static judging and the average single best flight result.

Pilots not having a valid flight result and a static result only are classified in descending order after those pilots having achieved both, static and flight results.

## 7. Static Judging

### 7.1 Proof / Documentation

The pilot must deliver proof of the actual existence of the prototype. Such proof can be: A photograph showing the aircraft as a whole, a three-side view drawing or a plastic construction kit. Proof of colour, such as a kit box cover, is required, too.

### 7.2. Judges

A minimum of two static judges must be used.

### 7.3 Judging Criteria

Three criteria are to be evaluated:

1. Outlines: Compliance with the documents submitted. Judged from a distance of 3 metres, without taking measures. (max. 10 points)
2. Colour and markings: Evaluated from a distance of 3 metres. (max. 10 points)  
In case of commercially manufactured models, colour and markings applied by the manufacturer shall be marked zero points. When colour and markings have been modified by the builder points to be given for this criteria shall range between 0 and 5.
3. Quality of Building: May be evaluated from close distance, without touching the model. (max. 10 points) When commercially manufactured models have been modified by the builder, points to be given for this criteria shall range between 0 and 5.

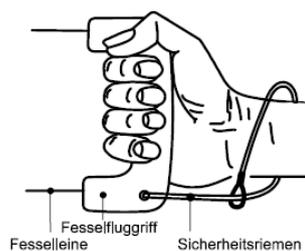
### 7.4 Range of points and static score calculation

Points in static judging may range from 0 to 10 in steps of 0.5 points. The maximum number of points per judge is 30. The sum of all points given by all judges is divided by the number of judges. The resulting average static score is then used for the final ranking.

## 8. Flight Judging

### Flight requirements:

Spinner (s) and propeller (s) may be changed for flight. Prior to each flight, the assembly as per article 4 of these rules must be submitted to a pull test as defined. From the beginning of take-off until the end of the landing roll the pilot must wear a safety strap around his wrist. Failure to do so results in a flight score of zero.



Zeichnung des Handgriffs mit Sicherheitsriemen

### 8.1 Flight Judges

A minimum of three judges must be used. The judge's panel must remain the same for each round flown.

### 8.2 Flight Schedule and Demonstrations

Semi-scale contests consist of minimum one and maximum three judged flying rounds.

The flight schedule consists of five compulsory and four optional manoeuvres. Prior to flight, the composition of the schedule and the flying order must be communicated to the judges.

The flight schedule shall be typical for the prototype aircraft and manoeuvres flown shall only be those for which the prototype aircraft was/is certified. In case of doubt, the pilot shall, prior to flight, deliver related proof to the judges.

The pilot defines the position of the judges.

Manoeuvres shall be flown opposite of the judge's position. The beginning and the end of all manoeuvres shall be verbally announced by the pilot, or a helper, by loudly calling "Now" and "End".

Between the end of one manoeuvre and the beginning of the next one, a minimum of two level laps must be flown at the height of the lower flight level of 2 metres. If less than two laps are flown, the following manoeuvre must be marked zero. The flying of more than two laps is permitted.

The flight time is 9 minutes. Within the first three minutes, the pilot may call an attempt and repeat his flight at the end of the round. Timing begins with a visible sign of the pilot indicating the beginning of his motor (s) start procedure. Judging ends when the 9 minutes flight time elapses. The pilot shall then land without further delay.

### 8.3 Range of points and flight score calculation

Points in flight judging may range from 0 to 10 in steps of 0.5 points. The maximum number of points per judge is 90. The sum of all points given by all judges is divided by the number of judges. The resulting average flight score is then used for the final ranking.

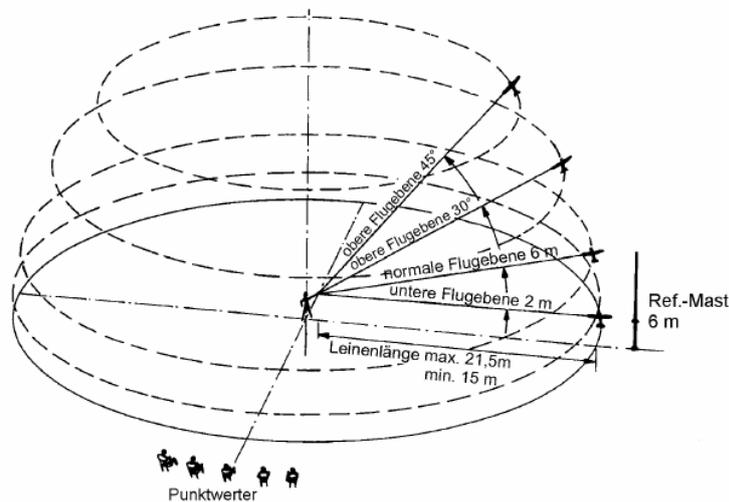
## 9. Flight Schedule

### Flight Levels:

Low Flight = lower level: 2 metres above ground

Normal Flight = normal level: 6 metres above ground

High Flight = upper level: min. 30° to max. 45° lines elevation angle



### 9.1 Taxi (compulsory manoeuvre)

This manoeuvre has to be executed at the beginning of the flight. As per the prototype, the model shall perform a ground roll of min. 15 metres and come to a full stop without any outside influence.

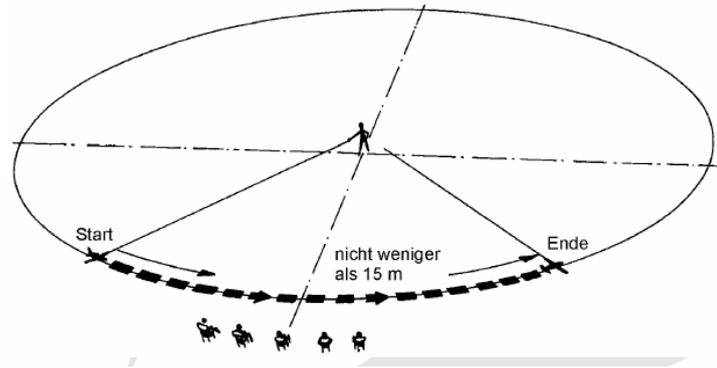
#### Errors:

The ground roll distance is less than 15 metres.

The model is influenced by persons from the outside.

The model does not stop within one lap.

In case the model is touched or influenced by a helper, the manoeuvre must be marked zero.



### 9.2 Take-Off (compulsory manoeuvre)

To be marked with the maximum number of points, take-off shall be from the ground, without helper and from standstill. (Pre-announced manual launching by a helper may be permitted. It must be marked zero.) The model shall perform a ground roll as per the prototype, followed by a climb to the normal flight level of 6 metres. Then, two level flight laps shall be flown during which the model may remain at 6 m altitude or may descend to the lower level of 2 metres. It is permitted to fly more than two level laps.

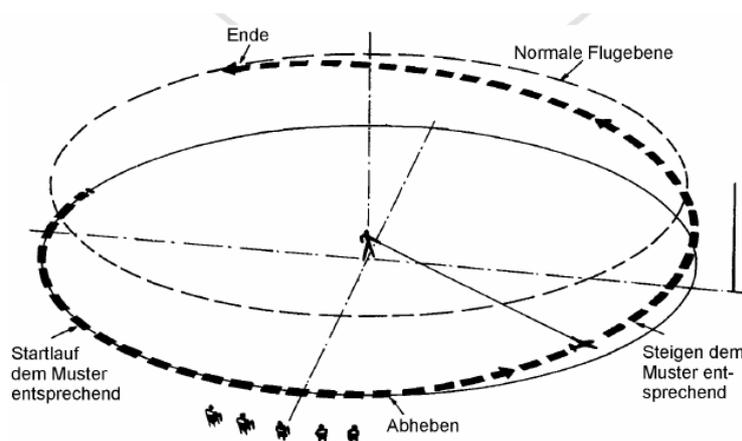
#### Errors:

If the model, after the initial lift-off, touches the ground again, the manoeuvre must be marked zero.

The climb angle is too steeped or too shallow.

If the model does not reach the normal flight level of 6 metres, the manoeuvre must be marked zero.

In case the motor (s) stop during the take-off run and before lift-off, the pilot may repeat his start manoeuvre. He will then loose his points for the start manoeuvre and cannot call for an attempt.





### 9.5 Touch and Go (optional manoeuvre)

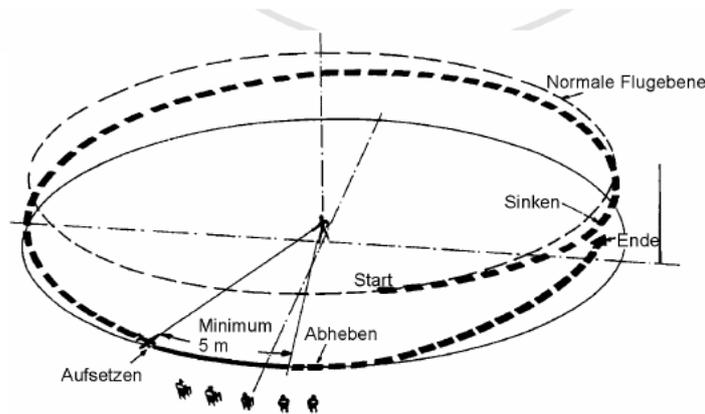
Beginning from the normal level of 6 metres, the model performs a landing approach as per the prototype and lands on ground. It then does a ground roll of min. five metres, followed by take-off and prototype-like climb to the normal level of 6 metres where the manoeuvre ends.

#### Errors:

The initial descend does not begin at the normal level of 6 metres.

Touch-down is not soft and the ground roll is less than 5 metres (more as per prototype)

The model climbs to less than the normal level of 6 metres.



### 9.6 Flight at Altitude (optional manoeuvre)

From an altitude chosen by the pilot, but not less than 2 metres, the model climbs to an altitude defined by the angle of the control lines to the ground of not less than 30 degrees, better yet 45°. While maintaining this altitude, three level laps must then be flown. The manoeuvre ends after those three laps. Flying more laps is permitted.

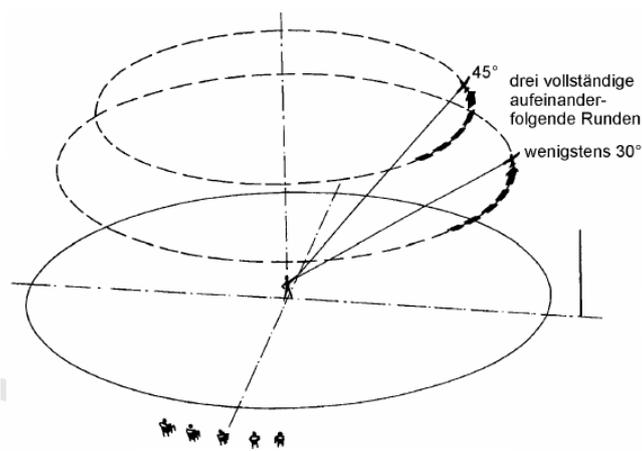
#### Errors:

The model wiggles.

Failure to maintain altitude during the initial three laps at altitude.

Failure to reach the 30° lines angle altitude leads to a mark of zero points for this manoeuvre.

Descending below 30° lines angle altitude during the initial three laps leads to a mark of zero points for this manoeuvre.



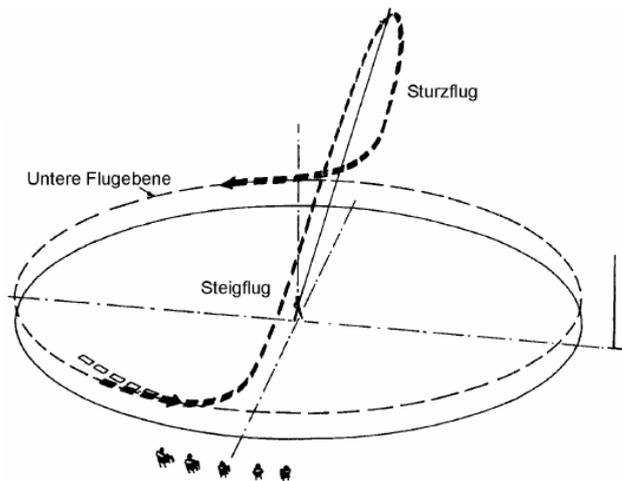
### 9.7 Wingover (optional manoeuvre)

From the lower flight level of 2 metres the model climbs straight up at an angle of not less than 60 degrees to the ground. It continues the climb on along a straight line and descends on the opposite side of the circle maintaining the same angle in descent. At the end of the dive segment, the model recovers softly to reach the lower flight altitude of 2 metres.

#### Errors:

The angles of climb and descent are not the same.

If the angles of climb and descent are less than 60°, the manoeuvre must be marked with zero points.



### 9.8 Inside Looping (optional manoeuvre)

The looping shall be flown according to the flight characteristics of the prototype. Models of older and/or low powered prototypes may build up speed by diving before entering the manoeuvre from the lower flight level of 2 metres. The looping must be round and the maximum altitude of the manoeuvre is defined by a lines angle of 90 degrees to the ground. The manoeuvre ends at the lower flight level of 2 metres.

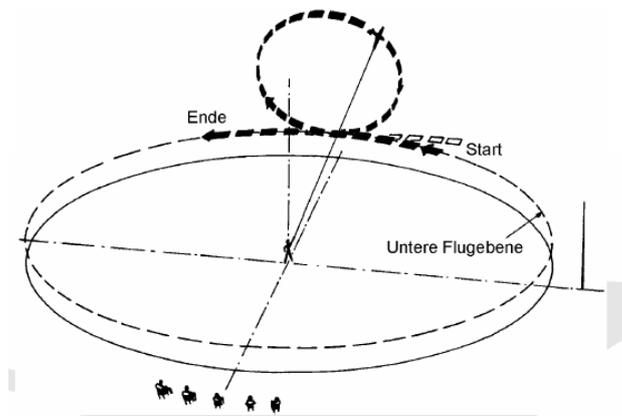
#### Errors:

The looping does not begin and/or end at the lower flight level of 2 metres.

The looping is not round.

The highest point of the manoeuvre is below a lines angle of 60°.

The model wiggles.

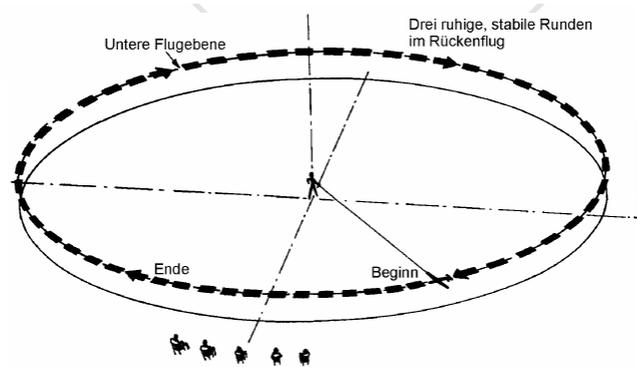


### 9.9 Inverted Flight (optional manoeuvre)

From any position the model enters inverted flight from the lower flight level of 2 metres. It maintains the altitude of 2 metres for a minimum of three laps and then recovers to level flight at the normal flight level of 6 metres.

#### Errors:

The model fails to maintain the altitude of 2 metres for three laps in inverted flight.  
The model does not fly stable in inverted flight.  
If flying less than 3 laps inverted, the manoeuvre must be marked zero.

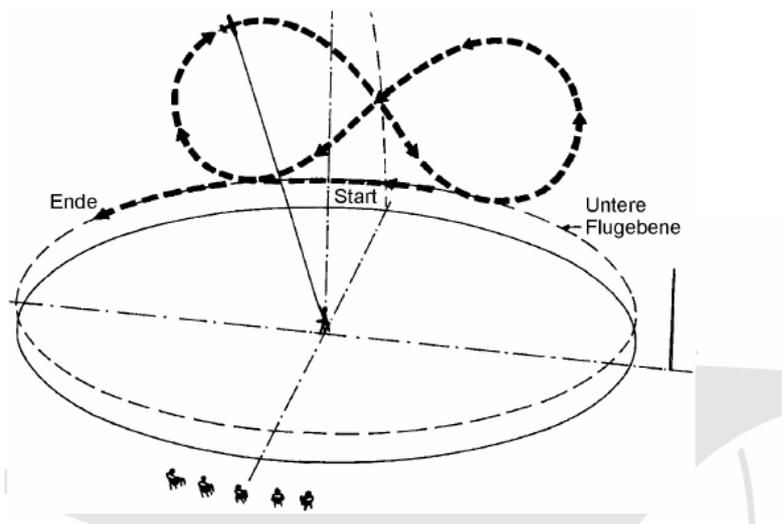


### 9.10 Horizontal Eight (optional manoeuvre)

Beginning at the lower flight level of 2 metres, the model performs approx.  $\frac{3}{4}$  of an inside looping not exceeding a maximum altitude of  $90^\circ$  lines angle altitude. It continues by performing approx.  $\frac{3}{4}$  of an outside looping not exceeding  $90^\circ$  and bringing it back to the lower flight level of 2 metres. The manoeuvre ends after a short distance flown level at 2 metres altitude.

#### Errors:

The manoeuvre does not begin/end at the lower flight level of 2 metres.  
The size of the two loopings is not the same.  
The highest point of the two loopings is below  $60^\circ$  lines angle.  
The model does not fly stable.



### 9.11 Lazy 8 (optional manoeuvre)

The manoeuvre begins on the lower flight level of 2 metres, in front of the judges. The model initially climbs to an altitude of 30° lines angle and from there descends to reach the lower flight level of 2 metres opposite the judges position. From there it climbs again to an altitude of 30° lines angle before descending to reach level of 2 metres in front of the judges where the manoeuvre ends in level flight at 2 metres.

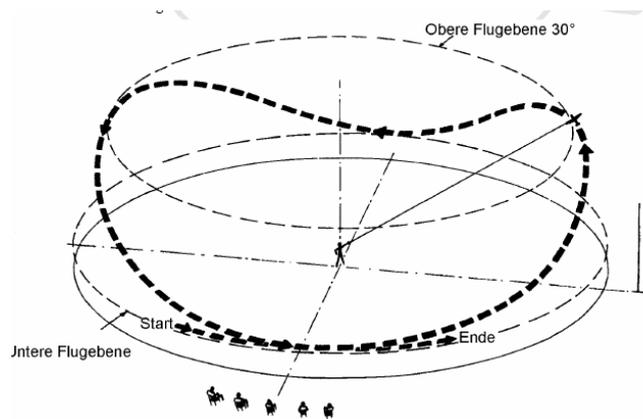
#### Errors:

The model does not reach 30° lines angle altitude.

Both sides of the manoeuvre are flown unequal.

The lower altitude of 2 metres are not reached or maintained.

The model does not fly stable.



### 9.12 Landing (compulsory manoeuvre)

Beginning from the normal level of 6 metres, the model performs a landing approach as per the prototype, followed by a soft touchdown. It performs a prototype-like rollout and comes, without outside influence to a full stop.

#### Errors:

Failure to initiate the landing approach from the normal level of 6 metres results in a mark zero.

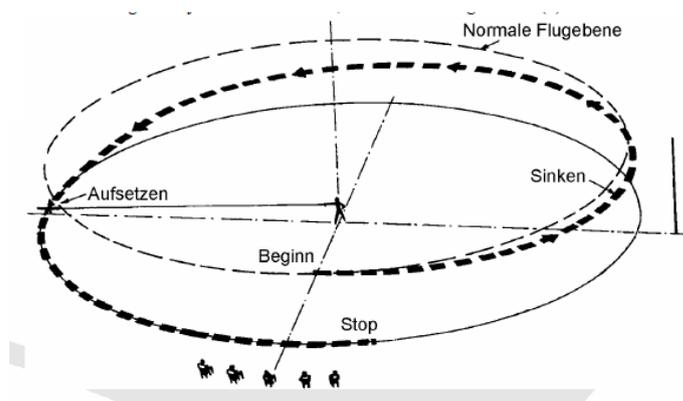
The model fails to touch down as per the prototype (three or two point touchdown).

Jumping after initial touchdown.

Failure to come to a full stop results in a 50% reduction of the marks for the landing manoeuvre.

Dropping on the nose in rollout results in a 30% reduction of the marks for the landing manoeuvre (Not applicable when flying over grass).

When flipping over, the mark for the landing manoeuvre must be zero.



**9.13 Multi Engines**

To receive the maximum landing and/or taxi points, all engines must be running until full stop.

Error:

In case of one or more motor (-s) failing before the model comes to a full stop, the marks given shall be reduced accordingly.

**9.15 Overall Impression and In-Flight Presentation**

Flight operations of the model shall be done in a way as close as possibly equal to the way the prototype is/was operated. Flight attitude and stability shall be demonstrated accordingly and manoeuvres flown shall be performed in a realistic manner.

**9.16 Special Functions**

Optional functions such as retractable landing gears, landing flaps, dropping functions and such may be demonstrated. Such functions are not judged.

**10. Invitations and Rankings**

The organisers will send invitations to potential participants by e-mail and arrange the publication of events and ranking lists on the website of the Swiss Aeromodelling Association SMV. The organiser authorises third parties to publish invitations, rules and rankings.

**11. Acknowledgment of Rules**

With his registration to participate, the contestant acknowledges these rules.

**Annexes**

Static Judging Score Sheet

Flight Judging Score Sheet

Index	
01.03.16	Translation of the 2015 german version
07.09.16	Modification in Pt. 9.1



**Swiss Aeromodelling Association**  
 Department of Sports  
 Control Line Committee

## Control Line Semi-Scale - Static Judging Score Sheet

Contestant.....	Nation.....	Club.....	BIB.....
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Judging Criteria		Points
1	Outlines	
2	Colour and Markings	
3	Quality of Building	
Total Points		

Judge	1	2	3
Initials			



**Swiss Aeromodelling Association**  
 Department of Sports  
 Control Line Committee

## Control Line Semi-Scale - Flight Judging Score Sheet

Round No:....

Contestant.....	Nation.....	Club.....	BIB.....
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Com-pulsary Mano-euvres	Optional Mano-euvres	Manoeuvres	Points
1		Taxi	
2		Take-off	
3		Normal Flight Level 6 m	
4 - 7		4 optional manoeuvres as marked by pilot and in this sequence	-----
	A	Missed Approach	
	B	Touch and Go	
	C	Flight at Altitude	
	D	Wingover	
	E	Inside Looping	
	F	Inverted Flight	
	G	Horizontal Eight	
	H	Lazy 8	
8		Landing	
9		Overall impression and in-flight presentation	
<b>Total Points</b>			

<b>Judge</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Initials</b>			