

F3C JUDGES' COURSE

2006 - 2009 SC



Developed by:

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Swiss F3C Judge

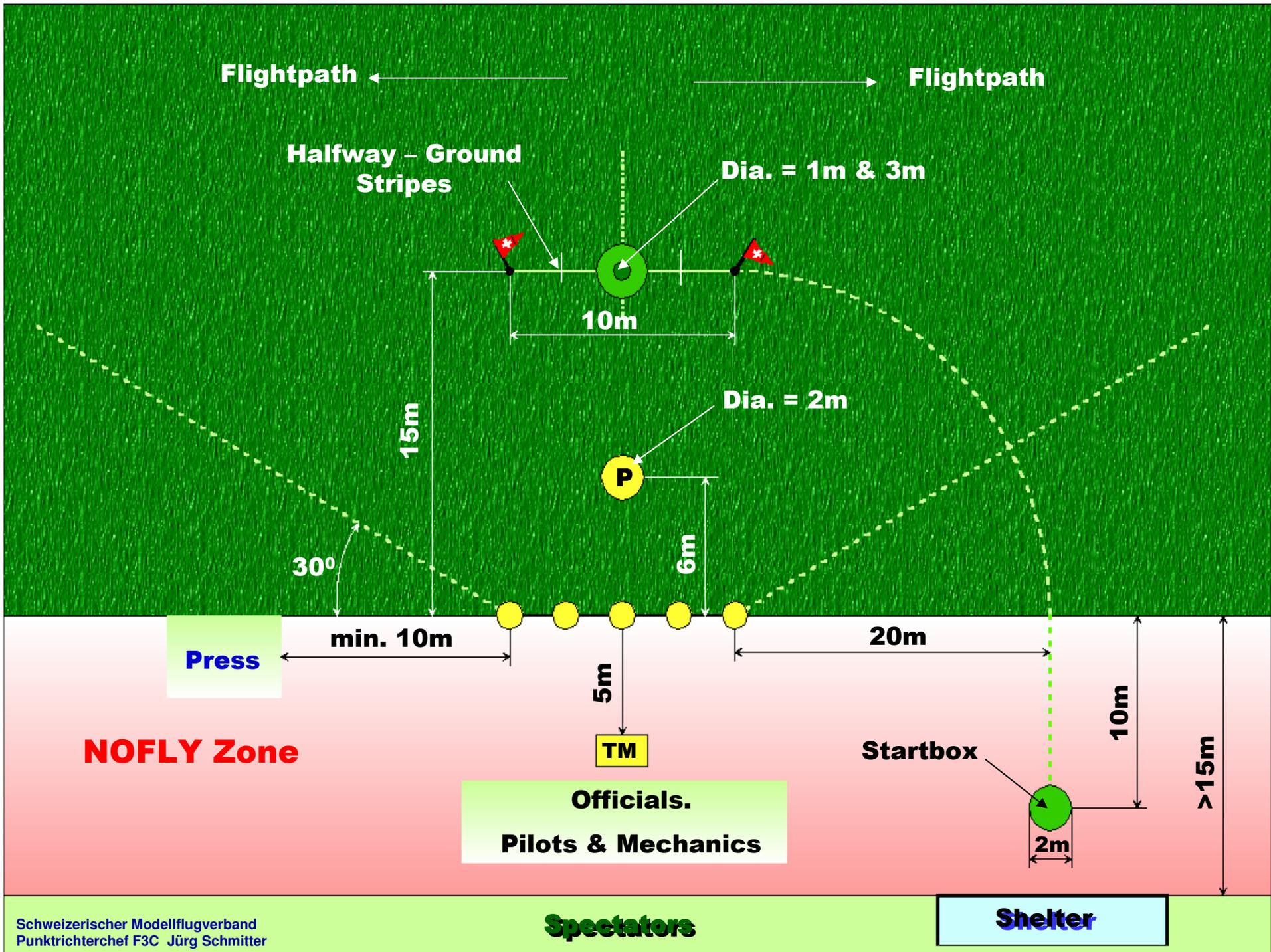
Translated by:

Horace Hagen
Chairman FAI/CIAM
F3C Subcommittee

AIRSPACE

ASSIGNMENT

FIELD LAYOUT



NOFLY Zone

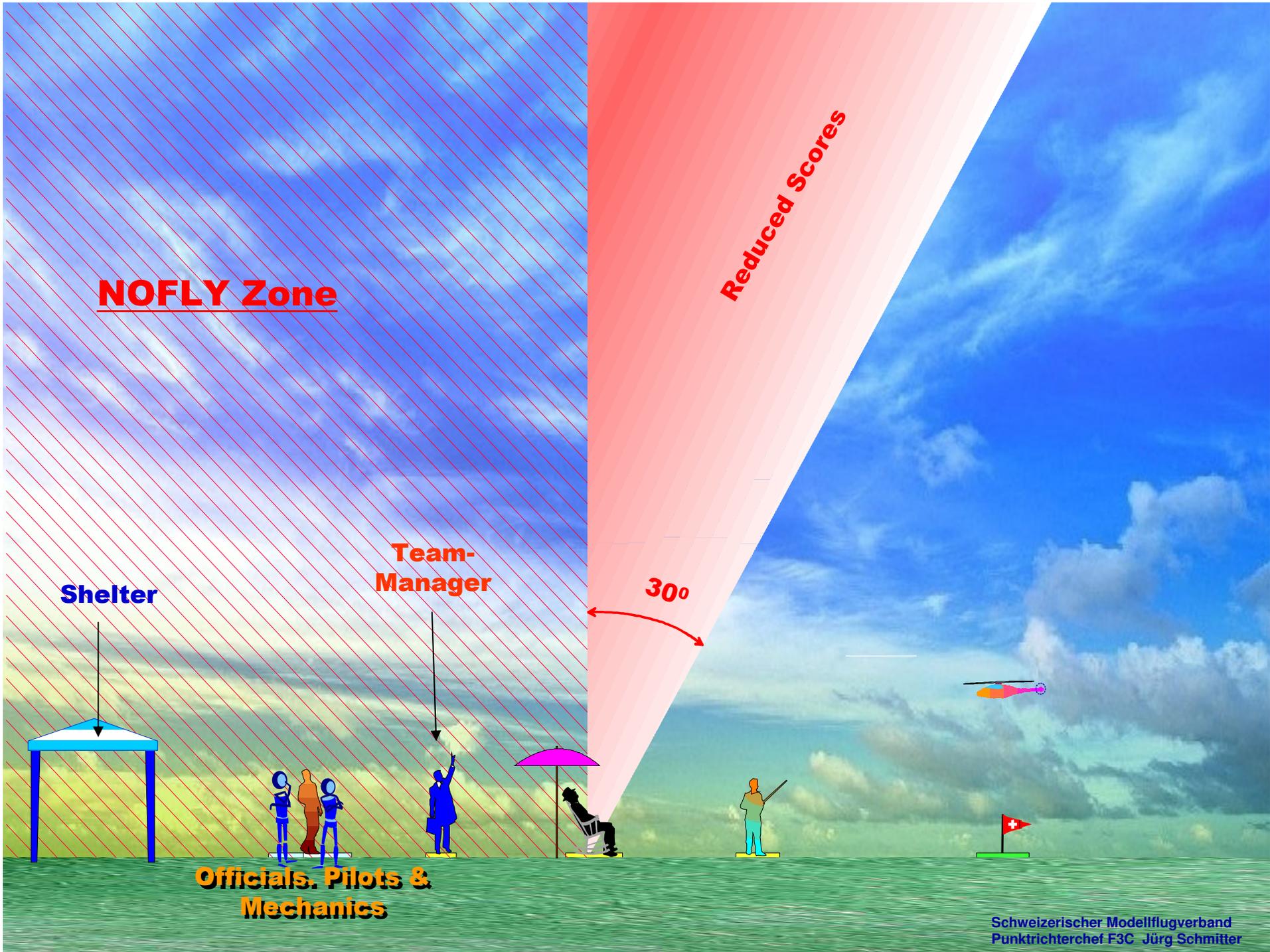
Reduced Scores

Shelter

Team-Manager

30°

Officials, Pilots & Mechanics





Scoring Principles for F3C Maneuvers

Think:

***What is your goal as
F3C Judge ?***

**The best competitor must get the
highest scores!**



***By studying the following documents
before every Championship***

How do you prepare yourself ?



Reference for F3C-Judges



Check-List for F3C-Judges



Elemental Scoring



F3C Regulations

A red and white helicopter is parked on a snowy mountain slope. The helicopter has "SWISS" written on its side. The background shows a cloudy sky and a snow-covered mountain peak.

***Do not discuss the
flights with your
fellow judges !***

**Score
consistently !**

Precise!

Unbiased!

Keep your **STANDARD**

Pilot 1	160 - 1,2	165 + 8,8	159 - 4,2	161 + 2,8	157 - 11,2
Pilot 2	121 - 14,8	128 + 6,2	139 + 37,2	125 - 4,8	118 - 23,8
Pilot 3	164 - 2,6	171 +19,4	162 - 7.6	165 + 2,4	161 - 11,6
Pilot 4	168 + 9,4	167 + 6,4	154 - 34,6	170 + 15,4	164 - 4,6
Pilot 5	153 - 3,0	159 + 14,0	144 - 31,0	155 + 1,0	161 + 19
					
	PR1	PR2	PR3	PR4	PR5

Fundamentals



For scoring the maneuvers

A photograph of a model helicopter with a white and red body and black rotor blades, positioned on a rocky, sparsely vegetated mountain slope. The helicopter is viewed from a side-rear perspective. The word "Precision" is overlaid in the center in a large, bold, red, italicized font with a black drop shadow. In the background, there are more rocky mountain peaks under a clear sky.

Precision

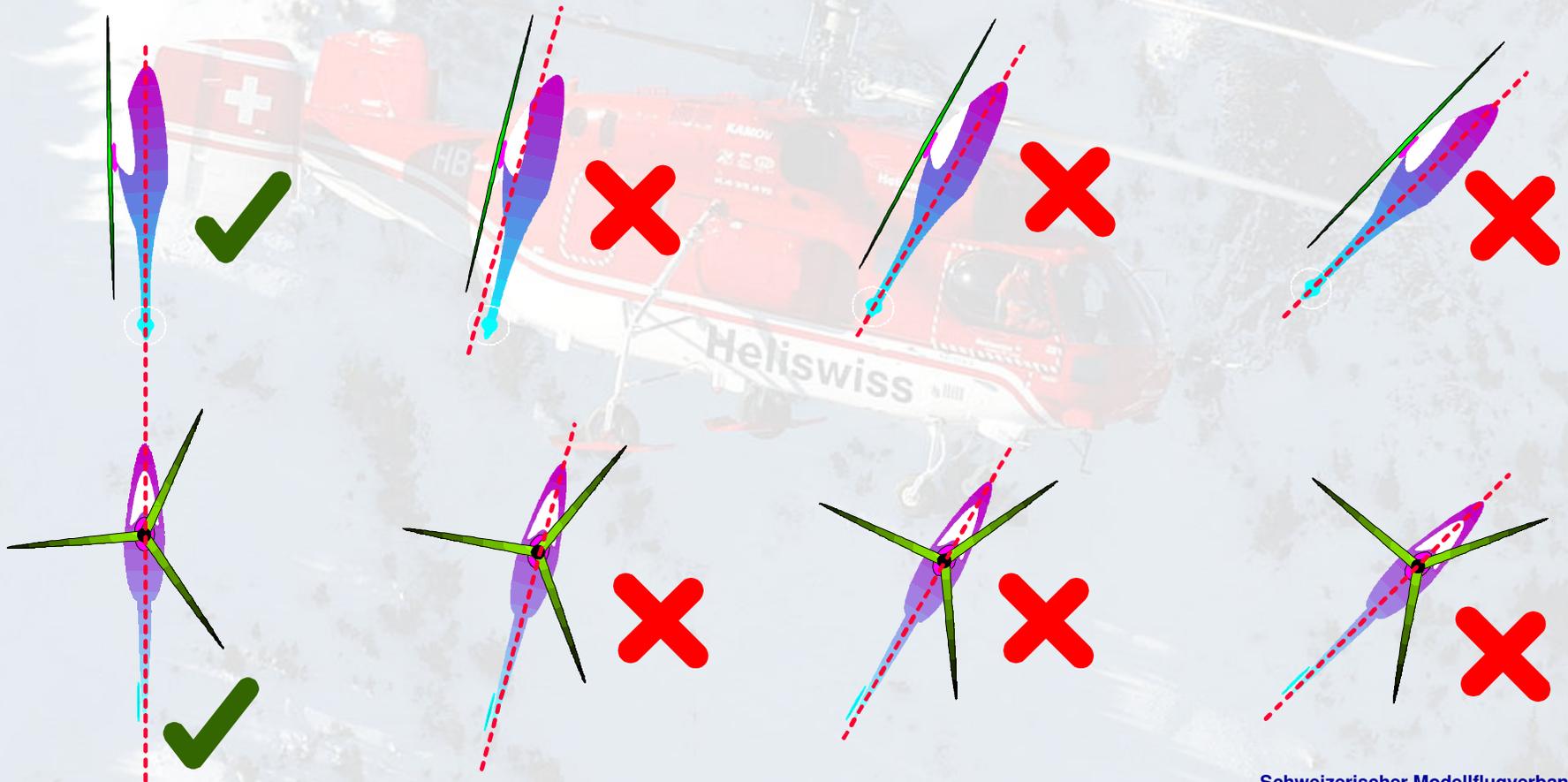
The 1 Point per 15° Rule

Perfect Geometry =
No Deduction

Up to 15°
Deviation =
1 Point Deduction

Up to 30°
Deviation =
2 Point Deduction

Up to 45°
Deviation =
3 Point Deduction



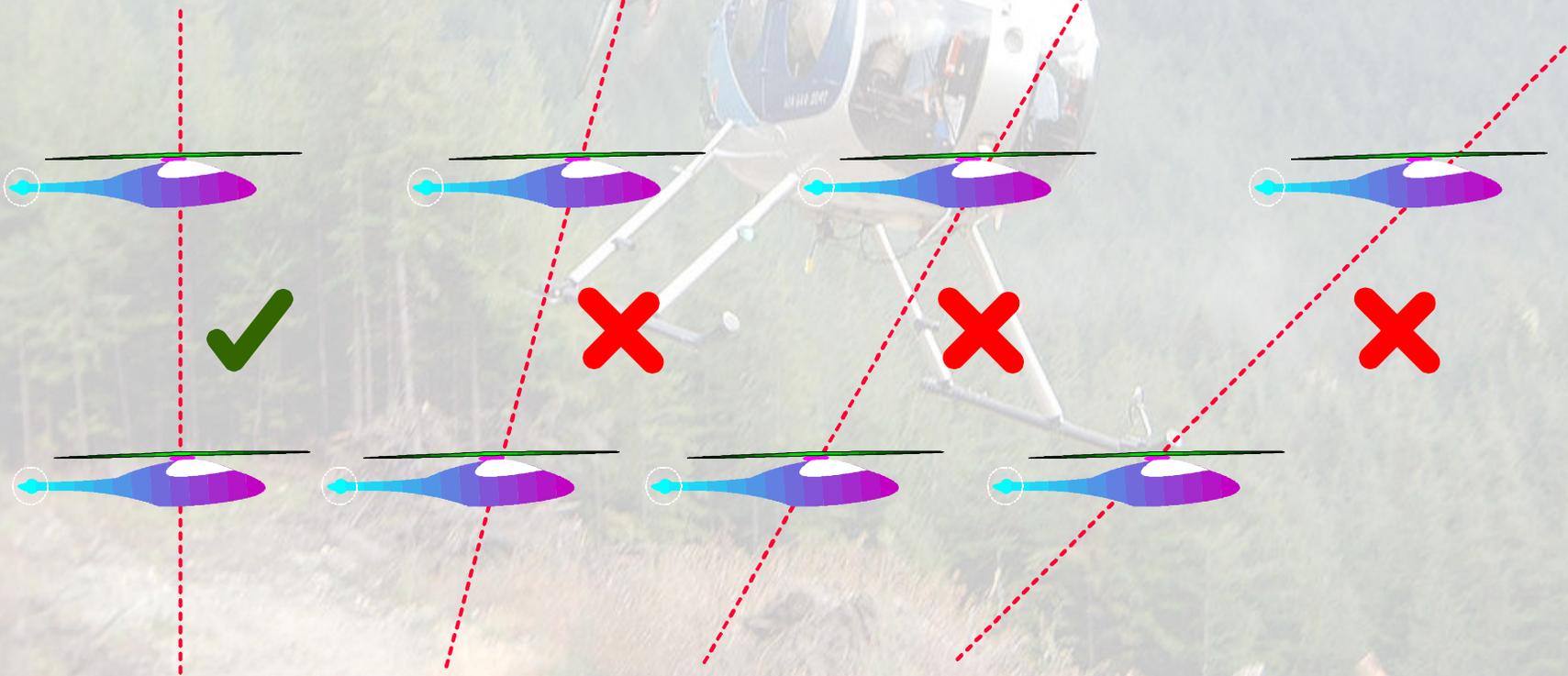
The 1 Point per 15° Rule

Perfect Geometry =
No Deduction

Up to 15°
Deviation =
1 Point Deduction

Up to 30°
Deviation =
2 Point Deduction

Up to 45°
Deviation =
3 Point Deduction



A model airplane is shown in flight against a bright, hazy sky with a prominent sun flare. The background features a line of trees on the right side. The text "Smooth and attractive execution" is overlaid in a bold, orange font with a dark shadow effect.

**Smooth and
attractive
execution**

A silver model helicopter is shown in flight against a background of a dense forest. The helicopter is positioned in the center of the frame, with its main rotor blades blurred due to motion. The registration number 'S-FY2' is visible on the side of the fuselage. The overall scene is slightly hazy, suggesting a misty or overcast day.

Size

In relation to window and other maneuvers !

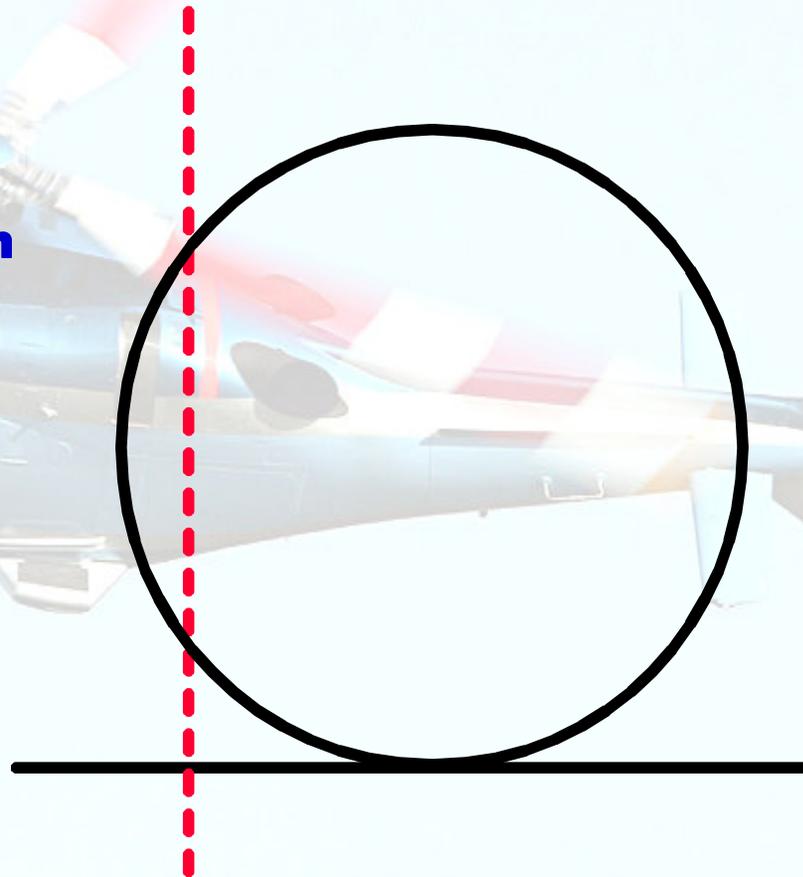


Placement!

Placement in the middle

Placement away from the middle ?

Minus **2** or **3** Points
(for this example)



100% Precision



**Smooth and attractive
execution**

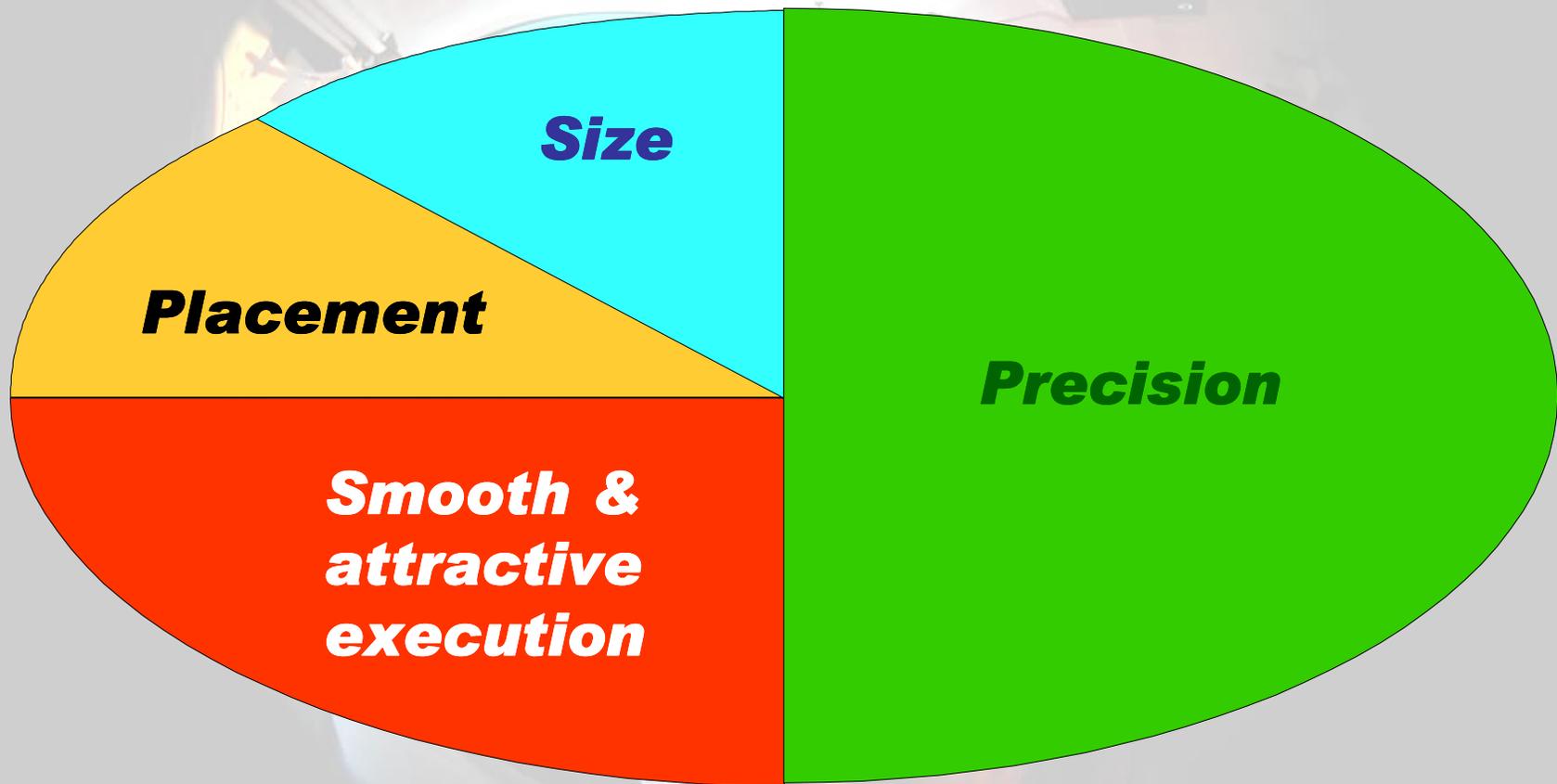


Correct Size



10 Points

Approximate weighting





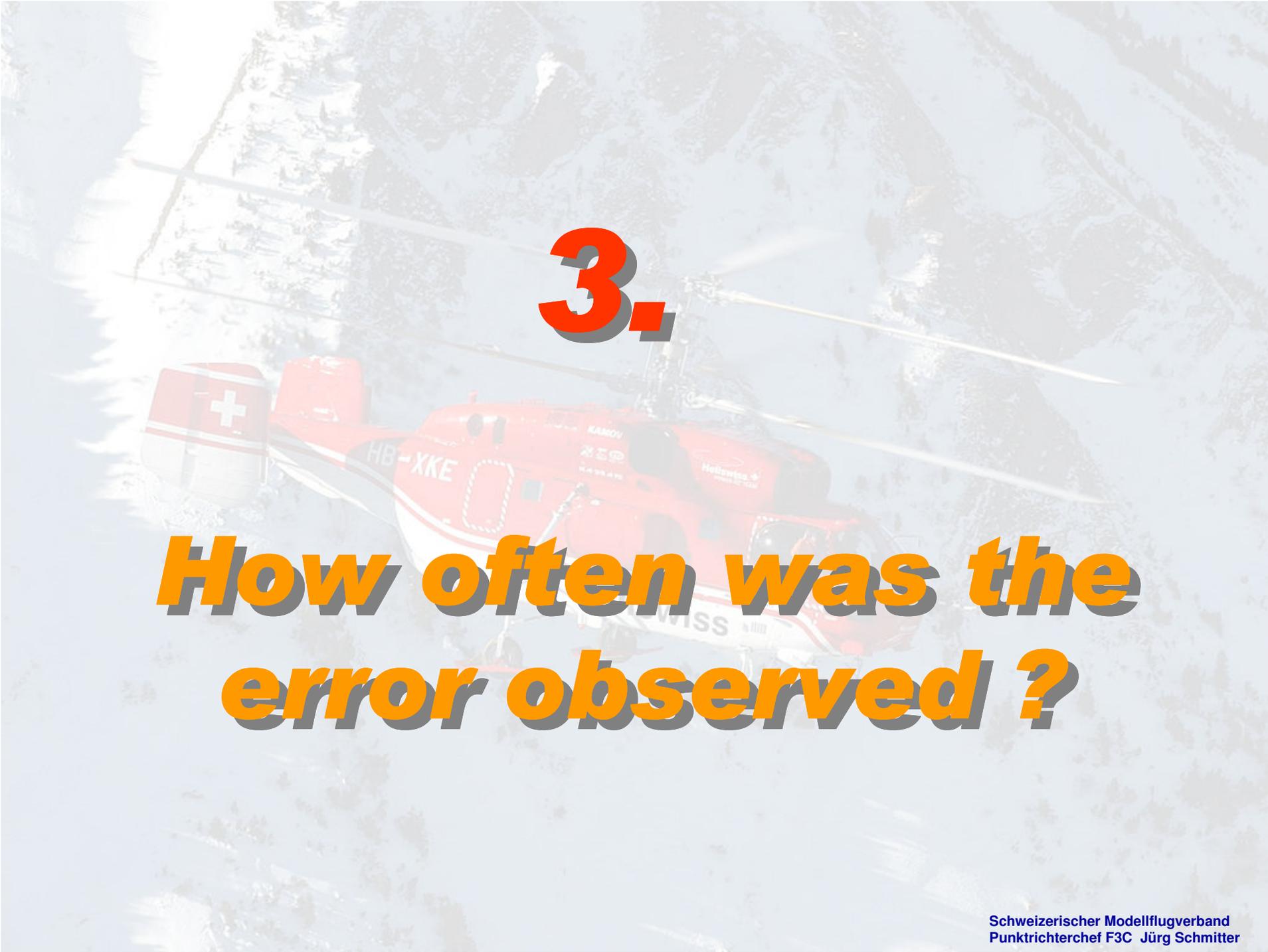
**Scoring criteria for
individual maneuvers
(Method)**

1.

**What was the
error?**

2.

**How severe was
the error ?**



3.

How often was the error observed?

A model helicopter is shown in flight against a background of a dense forest on a hillside. The helicopter is silver and blue, with the registration number '3-FVZ' visible on its side. The rotor blades are blurred, indicating motion. The overall scene is slightly hazy, suggesting a misty or overcast day.

4.

***How was the
maneuver placed ?***



5.

**What was the
size of the
maneuver ?**

**The final score lies
between 0 – 10
points !**

(not 6 – 7 – 8)

**Now translate the errors
into score reductions !**

**Start with the perfect 10
then 9.....
8.....
7.5.....
6.5.....
6.....
5.....
4.5.....
etc.**

Decide on your scoring system !

Gut Impression ?

**Point reduction-
system ?**



Utilize „NO“

(Not Observed)

**Be *fair* to the
competitor and to
yourself**

Maneuver schedule A

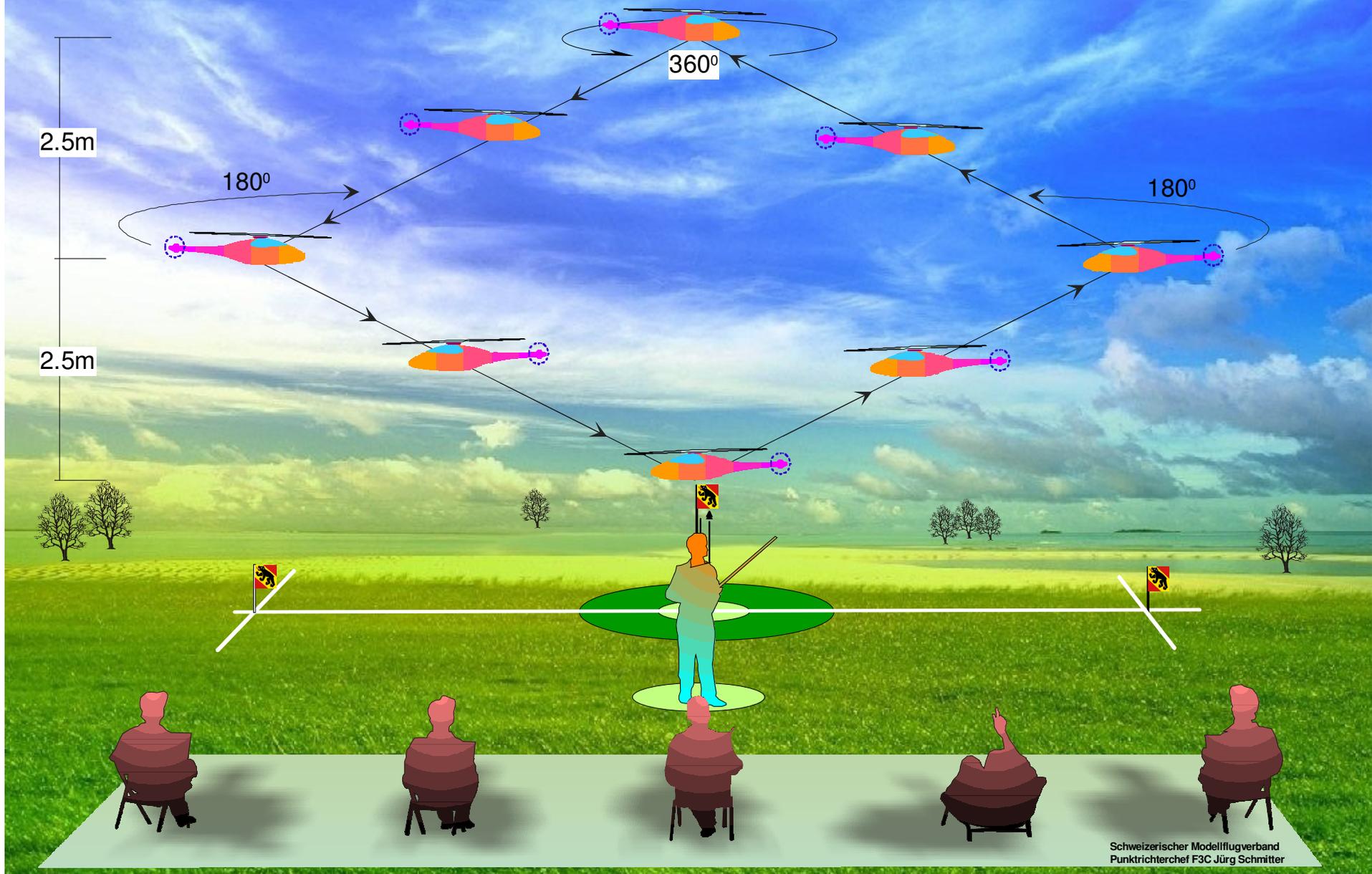


For the years 2006 - 2009

Jürg Schmitter
Swiss F3C Judge

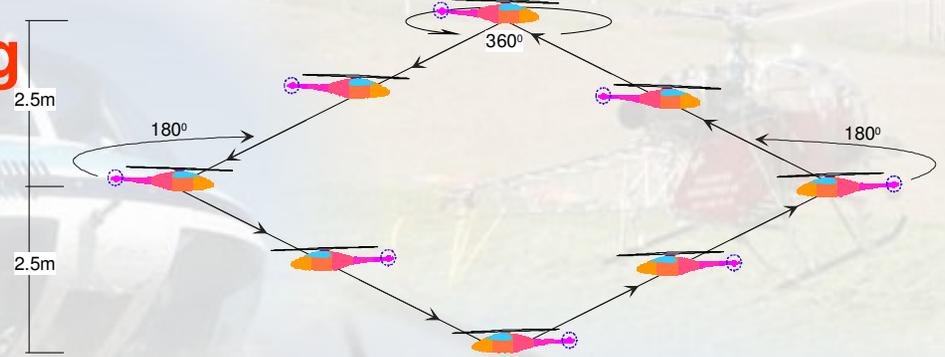
Fig. A1

DIAMOND



Reasons for downgrading

1. Maneuver was not 5m high
2. Pirouettes were not 180°
3. Pirouette was not 360°
4. Model moved sideways during stationary hover
5. Pirouettes were not centered over the helipad or Flags



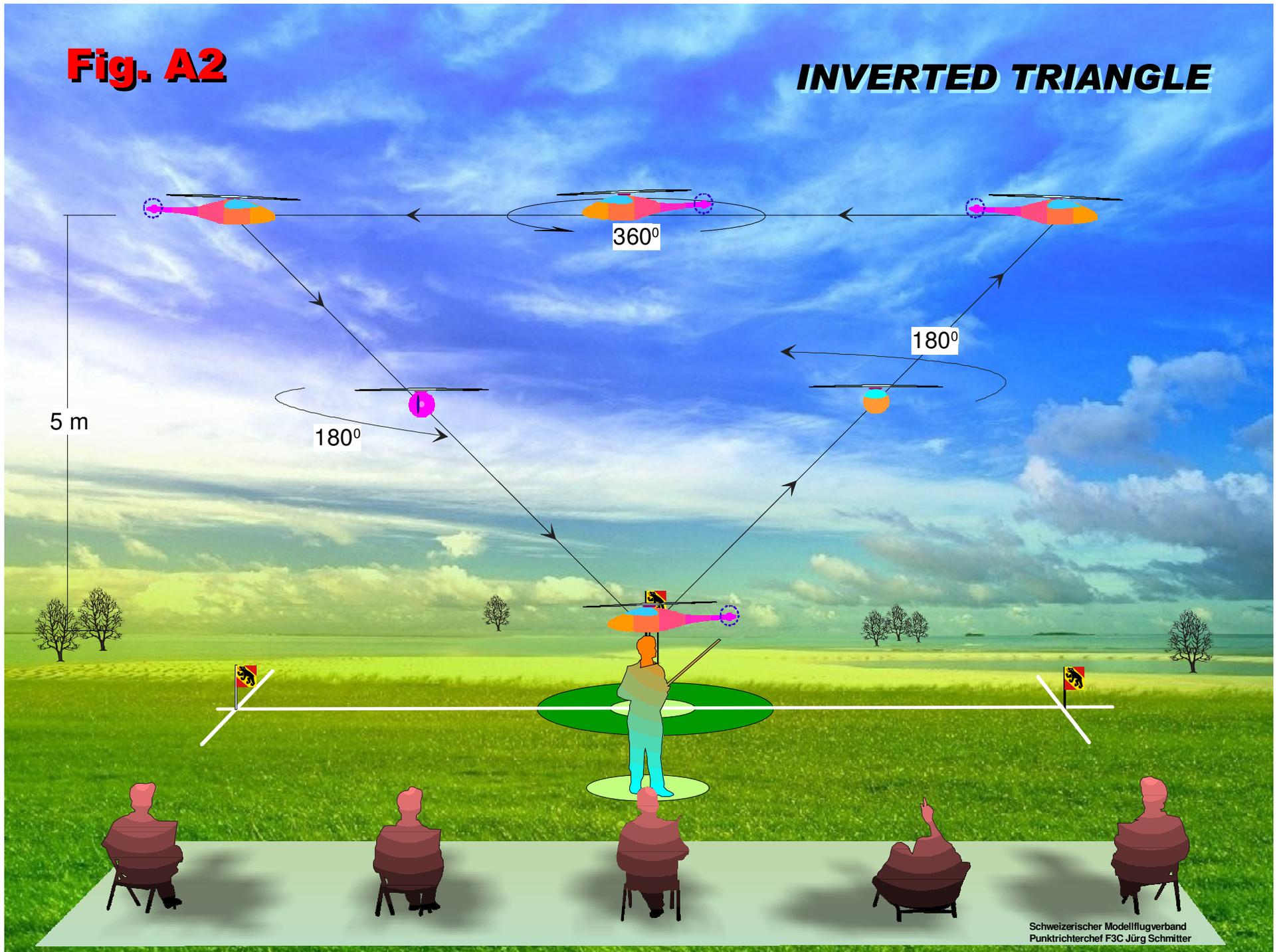
A1. DIAMOND

(UU)

1	Ascend to eye level and hover 2 seconds	0.5
2	Ascend backwards 2.5 m to over flag and hover 2 seconds	1.0
3	Perform 180° pirouette and hover 2 seconds	1.0
4	Ascend backwards 2.5 m to over helipad and hover 2 seconds	1.0
5	Perform 360° pirouette and hover 2 seconds	2.0
6	Descend backwards 2.5 m to opposite flag and hover 2 seconds	1.0
7	Perform 180° pirouette and hover 2 seconds	1.0
8	Descend backwards 2.5 m to over helipad and hover 2 seconds	1.0
9	Descend to helipad	0.5
10	Overall impression	1.0

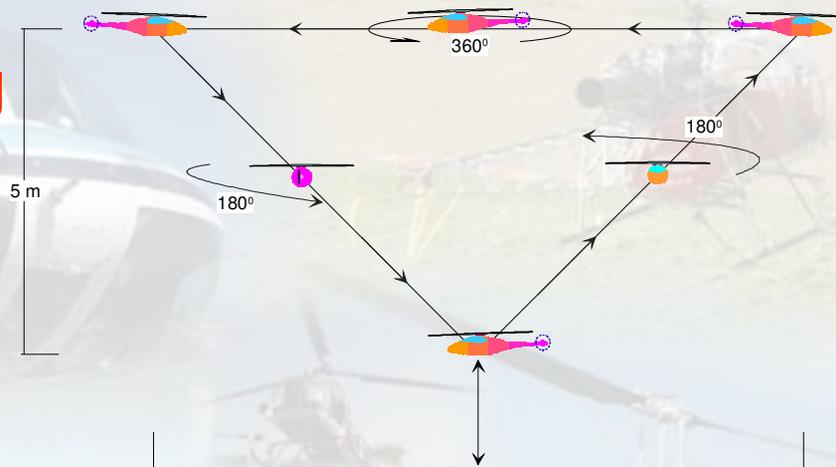
Fig. A2

INVERTED TRIANGLE



Reasons for downgrading

1. Maneuver was not 5m high
2. Ascent and descent were not 45°
3. Pirouette was not 360°
4. Pirouettes were not 180°
5. Model moved sideways during stationary hover



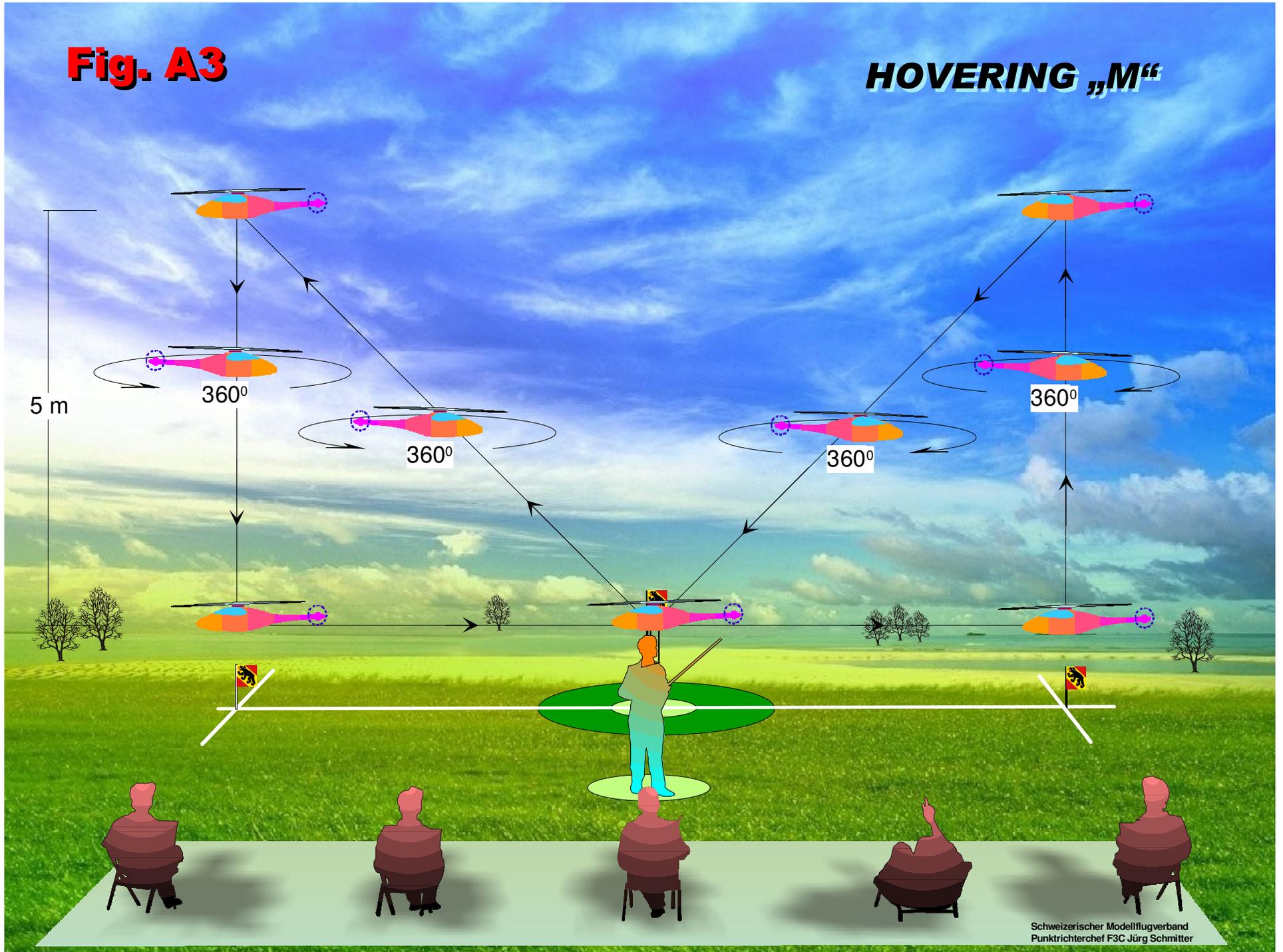
A2. INVERTED TRIANGLE

(UU)

1	Ascent to eye level and hover 2 seconds	0.5
2	Ascend 5 m (45°) while doing 180° pirouette to flag 1(2) and hover 2 seconds	3.0
3	10m backward flight with simultaneous 360° pirouette to flag 2(1) and hover 2 seconds.	2.0
4	Descend 5 m (45°) while doing 180° pirouette in either direction to over helipad and hover 2 seconds	3.0
5	Descend to helipad	0.5
6	Overall impression	1.0

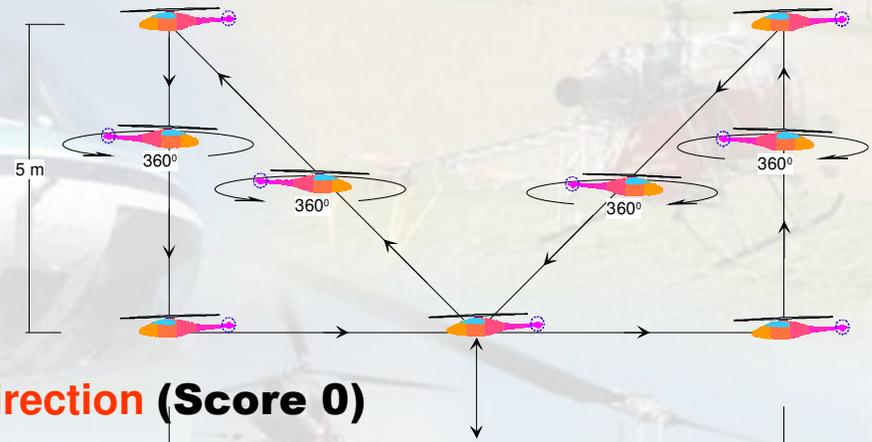
Fig. A3

HOVERING „M“



Reasons for downgrading

1. Top of maneuver not at 5 m
2. Model moved sideways
3. Pirouettes were not 360°
4. Ascent and Descent were not 45°
5. Pirouettes (1 & 2) were **not** in same direction (**Score 0**)
6. Pirouettes (3 & 4) were not in opposite direction to (1 & 2) (**Score 0**)



A3. HOVERING “M”

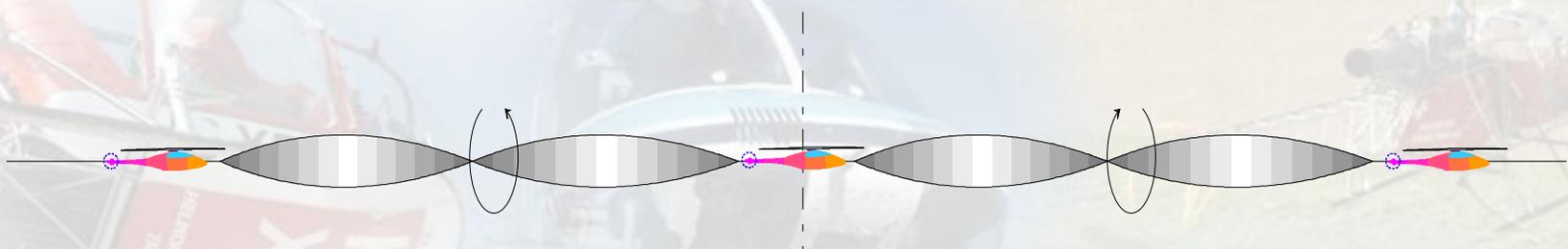
(UU)

1	Ascend to eye level and hover 2 secs.	0.5
2	Hover backwards and stop 2 secs.	0.5
3	Ascend 5 m and perform simultaneous 360° pirouette and stop 2 secs.	1.5
4	Descend 5 m at 45° while simultaneously performing a 360° pirouette in the same direction as the first and stop 2 secs.	2.0
5	Ascend 5 m at 45° while simultaneously performing a 360° pirouette in the opposite direction as the first two and stop 2 secs.	2.0
6	Descend 5 m and perform a simultaneous 360° pirouette in the same direction as the previous one and stop 2 secs.	1.5
7	Hover backwards and stop 2 secs.	0.5
8	Descend to helipad	0.5
9	Overall Impression	1.0

Fig. A4

ROLL REVERSAL





Reasons for downgrading

1. Maneuver was shorter than (4) seconds.
2. Model was not upright in the center in front of the judges

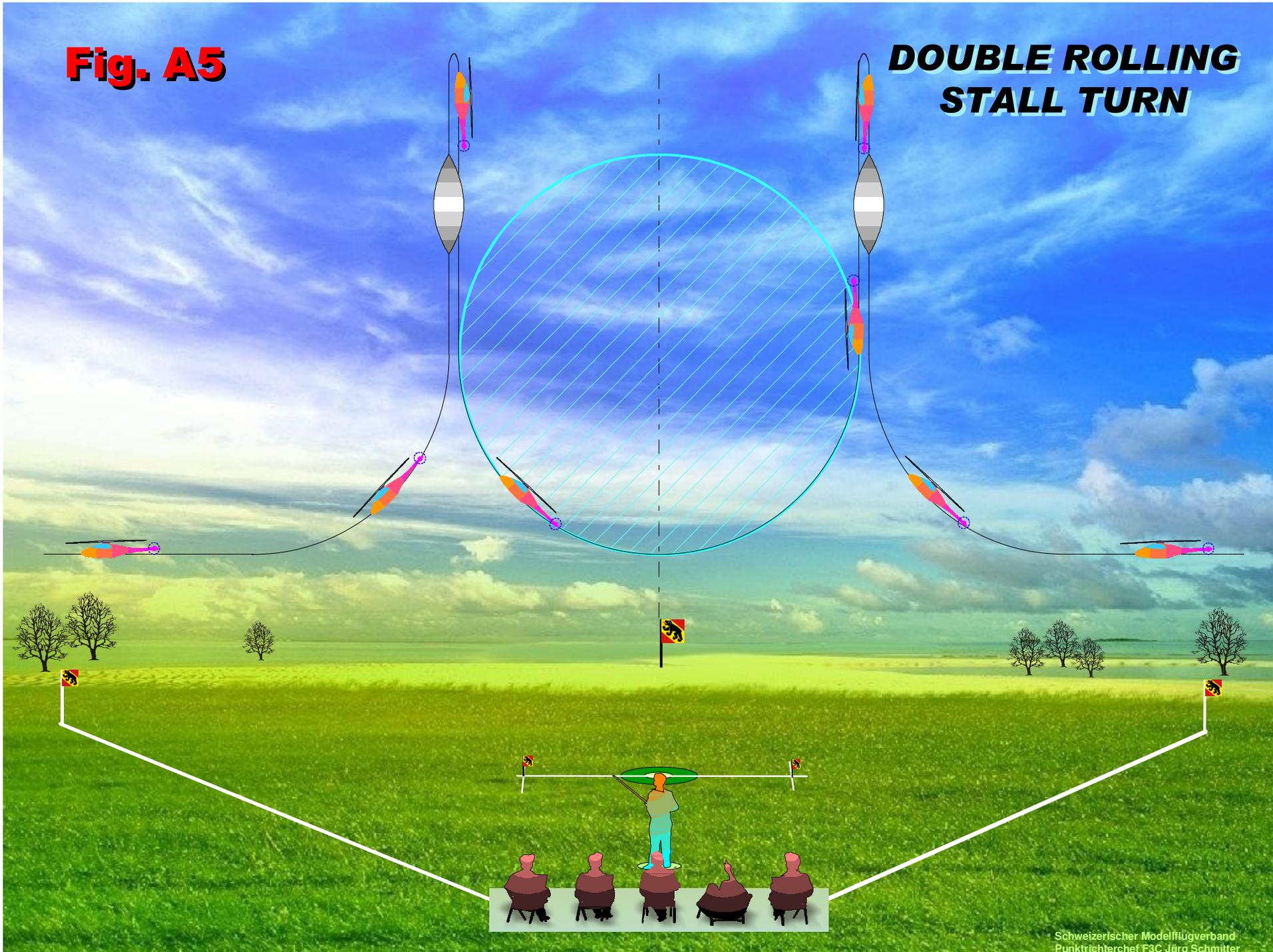
A4. ROLL REVERSAL

(DD)

1	10 meter minimum straight and level entry	0.5
2	1. Roll	3.0
3	Recognizable straight and level flight	1.0
4	2. Opposite roll	3.0
5	10 meter minimum straight and level exit	0.5
6	Overall impression	2.0

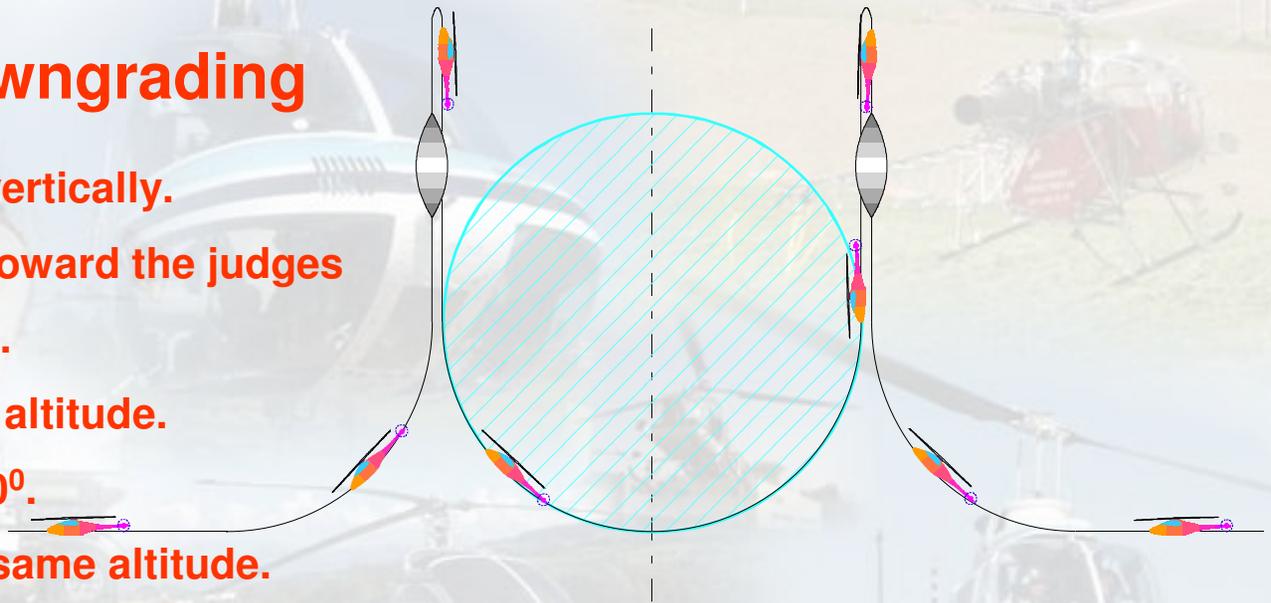
Fig. A5

**DOUBLE ROLLING
STALL TURN**



Reasons for downgrading

1. Model does not climb vertically.
2. Model drifted away or toward the judges
3. Half rolls were not 180°.
4. Rolls were not at same altitude.
5. Pirouettes were not 180°.
6. Pirouettes were not at same altitude.



A5. DOUBLE ROLLING STALL TURN

(UU)

1	10 meter minimum straight and level entry	0.5
2	¼ loop and ascent	0.5
3	Half roll and ascent	1.5
4	Stop and 180° pirouette	1.0
5	Vertical descent	0.5
6	½ loop and ascent	1.0
7	Stop and 180° pirouette	1.0
8	Vertical descent with half roll and ¼ loop	1.5
9	10 meter minimum straight and level exit	0.5
10	Overall impression	2.0

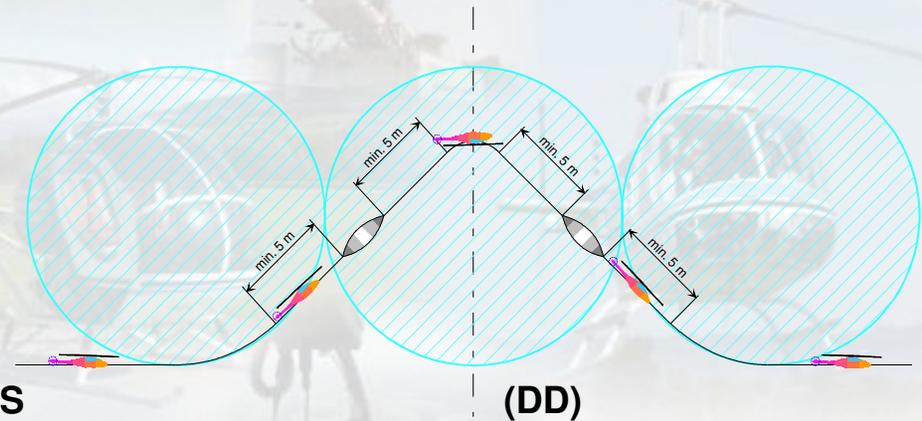
Fig. A6

COBRA-ROLL WITH HALF ROLLS



Reasons for downgrading

1. Straight segments of ascent and descent were not 45°
2. Straight segments before and after the rolls were too short
3. The 1/4 inside loop was not centered
4. Entry and exit were not level and less than 10 meter long



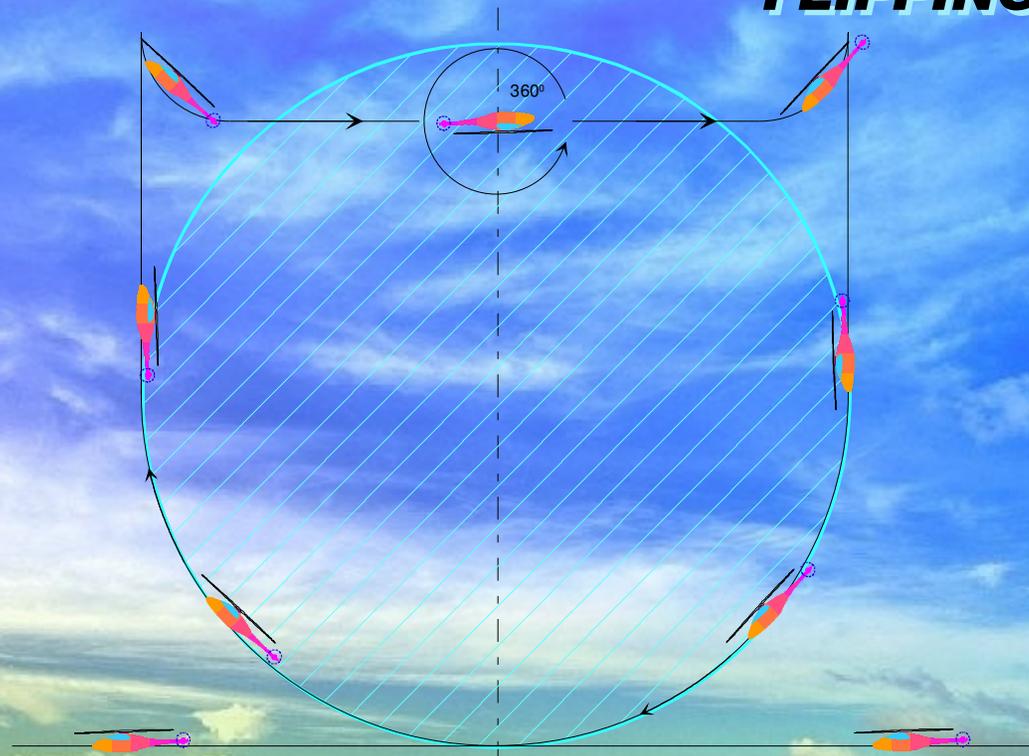
A6. COBRA-ROLL WITH HALF ROLLS

(DD)

1	10 meter minimum straight and level entry	0.5
2	45° ascent min. 5m followed by half roll	2.0
3	45° ascent min. 5m	1.0
4	¼ inside loop	1.0
5	45° descent min. 5m followed by half roll	2.0
6	45° descent min. 5m and 10 meter minimum straight and level exit	1.5
7	Overall impression	2.0

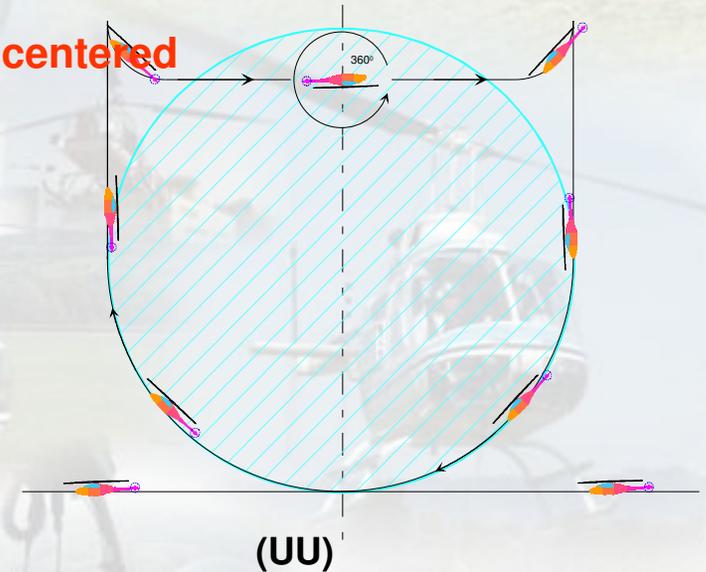
Fig. A7

FLIPPING PULLBACK



Reasons for downgrading

1. Straight and level entry or exit less than 10m long.
3. ¼ loops not equal in size
2. Inverted position during 360° travelling flip not centered
4. Ascent and descent not vertical
5. Small ¼ loops not at same altitude

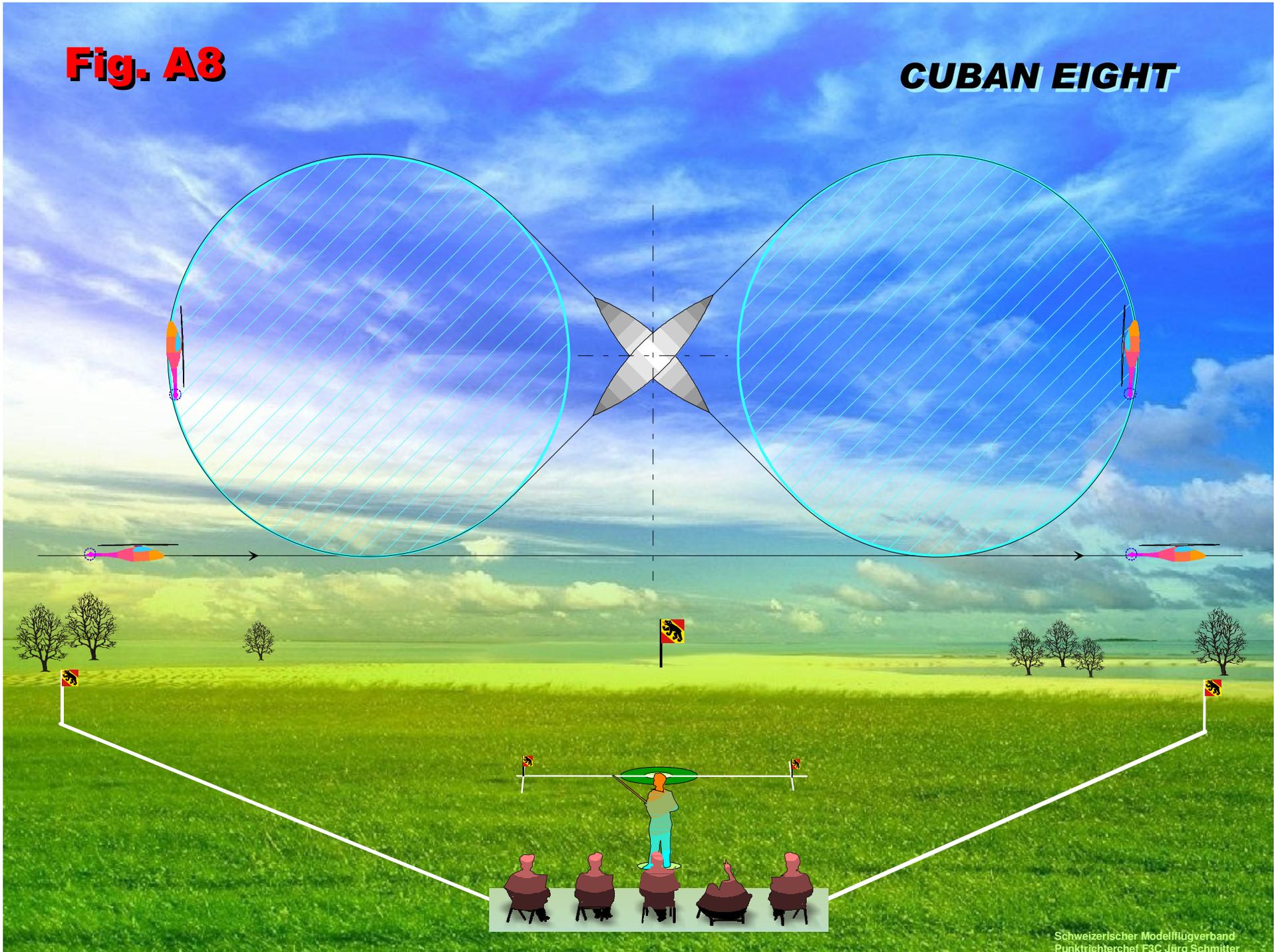


A7. FLIPPING PULLBACK

1	10 meter minimum straight and level entry	0.5
2	¼ loop after centerline with vertical ascent	1.0
3	Small backward ¼ inside loop to horizontal	1.0
4	360° backward travelling pushed flip	3.0
5	Small backward ¼ inside loop to vertical	1.0
6	Vertical descent with ¼ loop	1.0
7	10 meter minimum straight and level exit	0.5
8	Overall impression	2.0

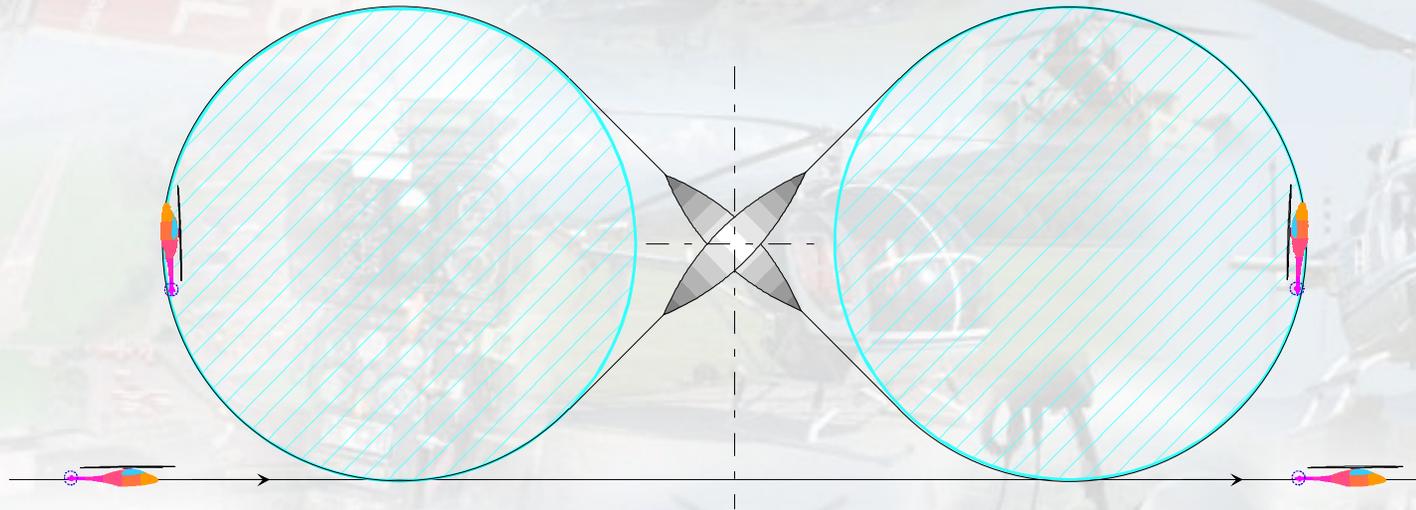
Fig. A8

CUBAN EIGHT



Reasons for downgrading

1. Half rolls were not 180° .
2. Model drifted away or toward the judges



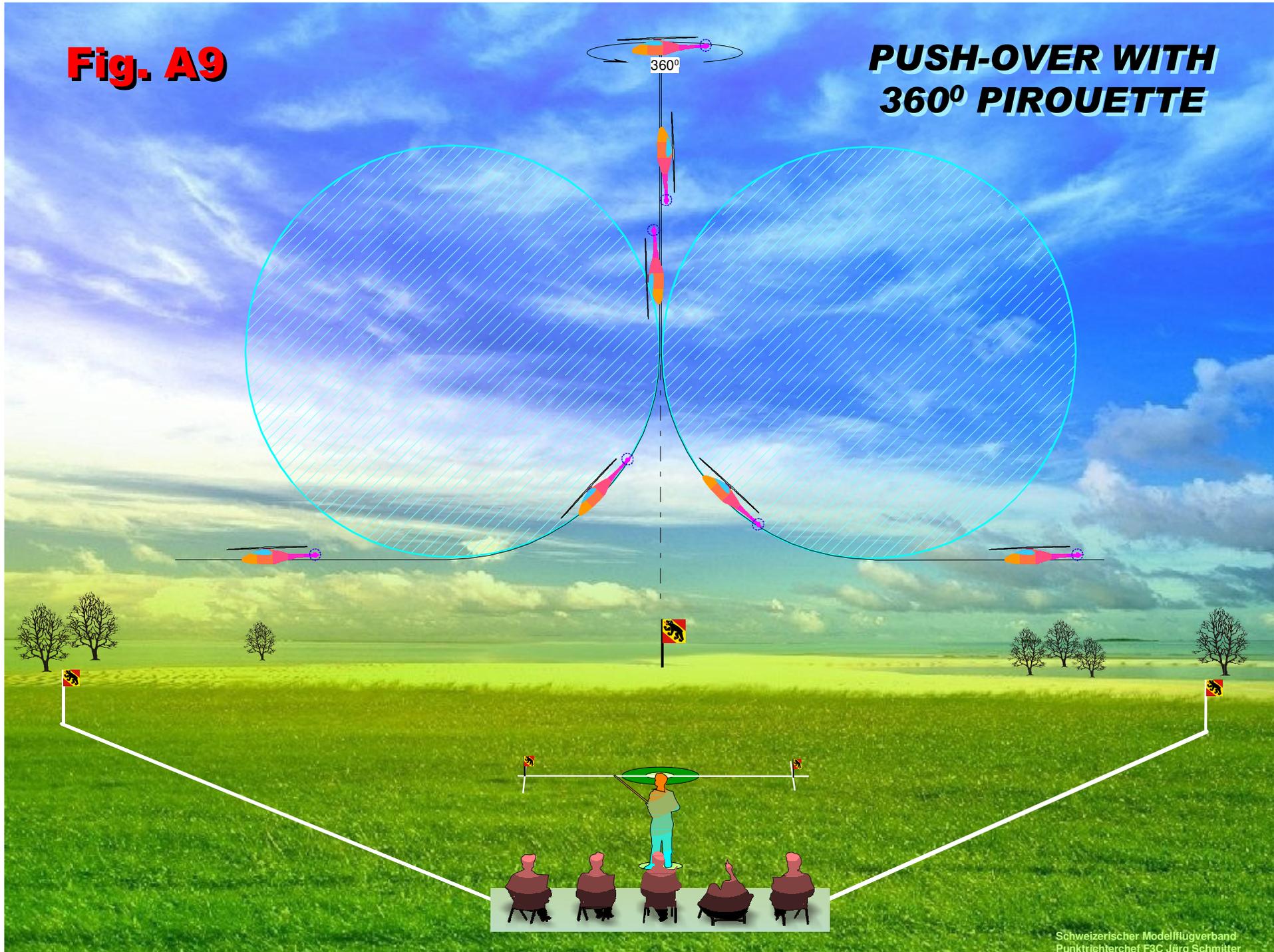
A8. CUBAN EIGHT

(DD)

1	10 meter minimum straight and level entry	0.5
2	5/8 inside loop & 45° descent	2.0
3	First half roll	1.5
4	$3/4$ inside loop & 45° descent	2.0
5	Second half roll and $1/8$ inside loop	1.5
6	10 meter minimum straight and level exit	0.5
7	Overall impression	2.0

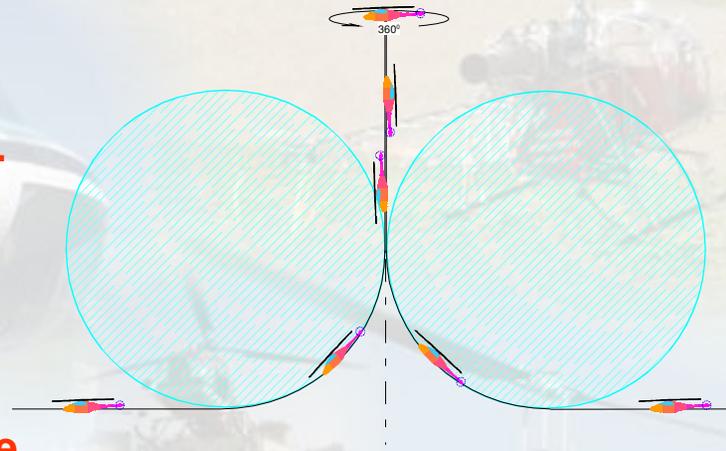
Fig. A9

**PUSH-OVER WITH
360° PIROUETTE**



Reasons for downgrading

1. Vertical segments were not superimposed.
2. Pushed flip not 90°
3. Pirouette was not 360°
4. Pirouette less than 4 seconds
5. Model moved sideways or changed altitude
6. Model drifted away or toward the judges



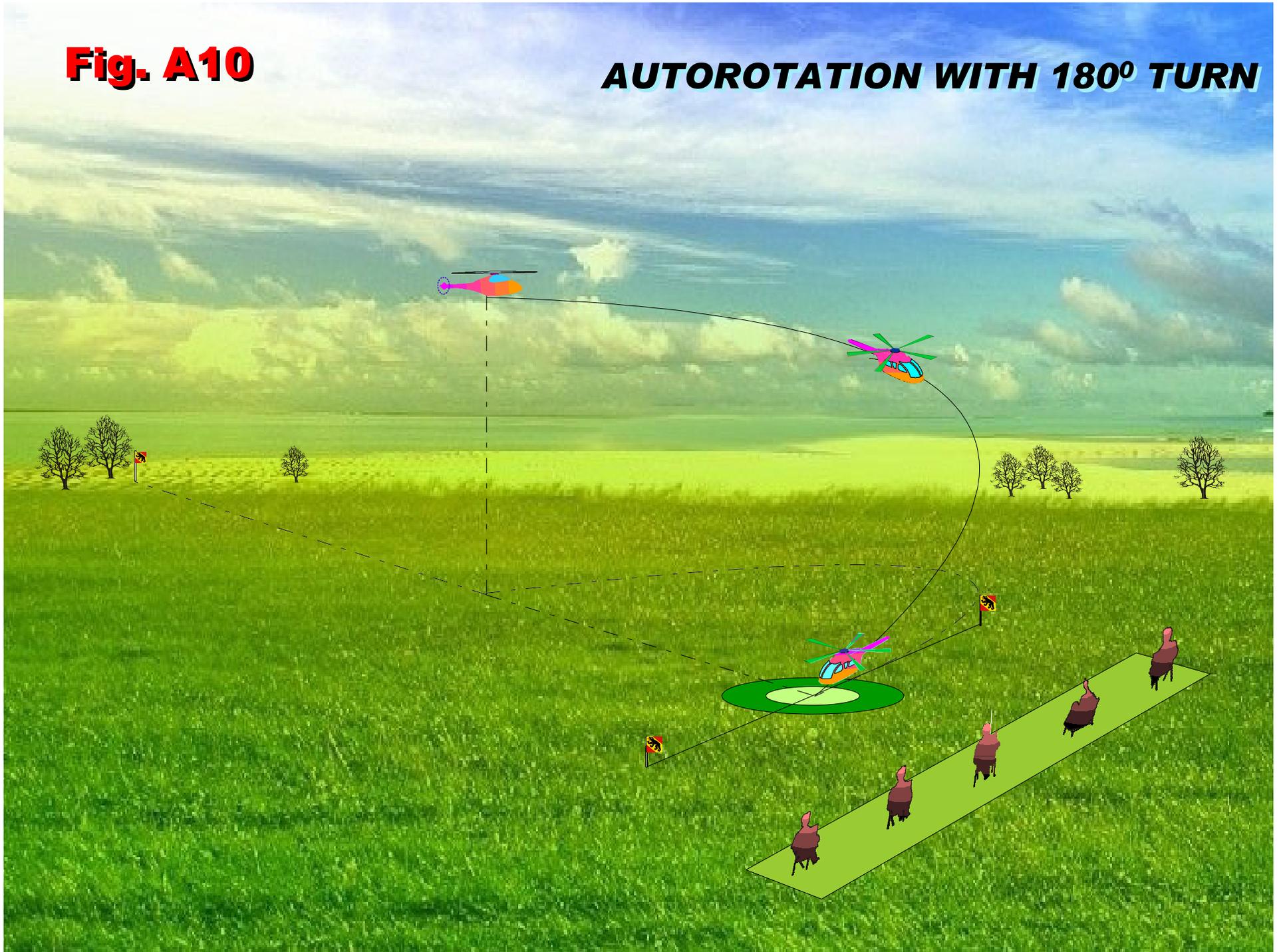
A9. PUSH-OVER WITH 360° PIROUETTE

(UU)

1	10 meter minimum straight and level entry	0.5
2	¼ loop and ascent	1.0
3	90° outside flip and 2 second stop	1.5
4	4 second minimum 360° pirouette and 2 second stop	2.0
5	90° outside flip	1.5
6	Vertical descent and ¼ loop	1.0
7	10 meter minimum straight and level exit	0.5
8	Overall impression	2.0

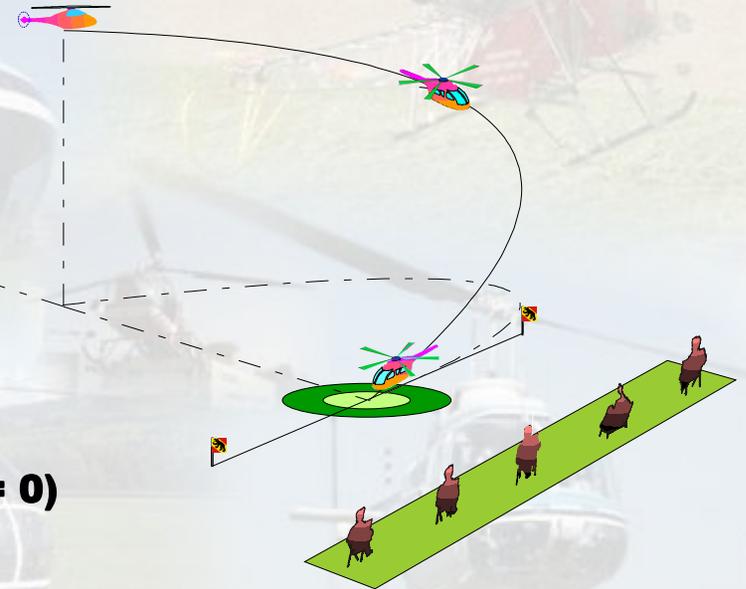
Fig. A10

AUTOROTATION WITH 180° TURN



Reasons for downgrading

1. Model makes a hard landing
2. Model lands before it comes to a complete stop
3. Model did not fly a 180° turn
4. Rate of descent was not constant
5. Flight path was stretched to reach helipad
6. If the Motor was running during the maneuver (**Score = 0**)



A10. AUTOROTATION WITH 180° TURN

(DU)

1	180° Turn	4.0
2	Landing *	4.0
3	Overall impression **	2.0

Max. Score 10 = Landing gear completely inside 1m circle and parallel

Max. Score 9 = Rotorshaft points to inside 1m circle and parallel

Max. Score 8 = Landing gear completely inside 3m circle and parallel

Max. Score 7 = Rotorshaft points to inside 3m circle and parallel

Max. Score 6 = Rotorshaft points to outside of 3m circle

Maneuver Schedule B

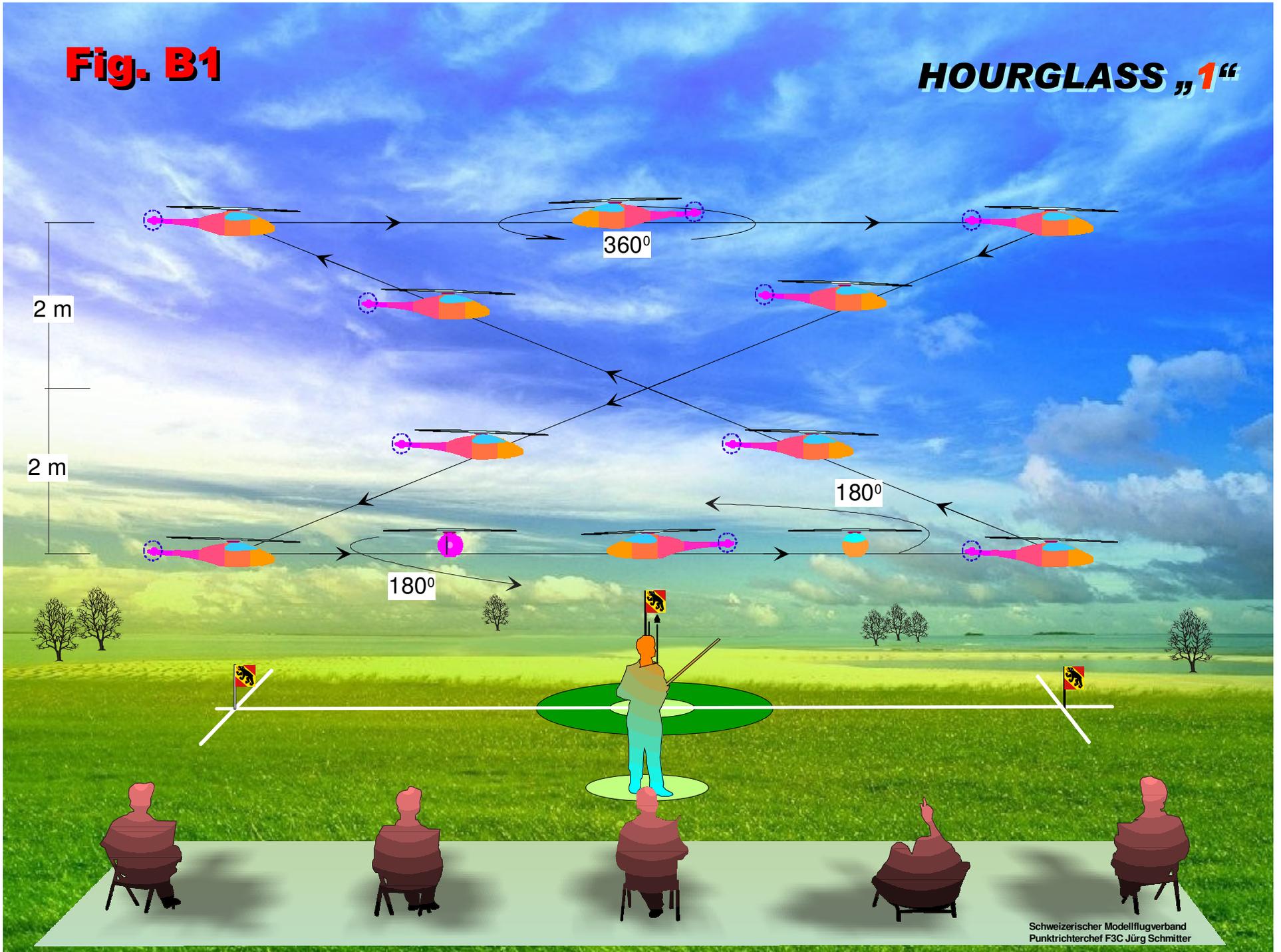


For the years 2006 & 2007

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Swiss F3C Judge

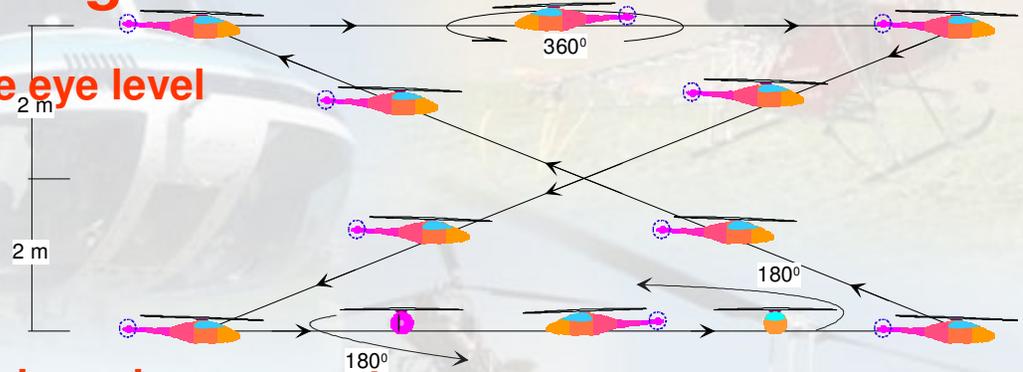
Fig. B1

HOURGLASS „1“



Reasons for downgrading

1. Top of maneuver not 4m above eye level
2. 4 segments not straight lines
3. Pirouette not 360°
4. Pirouettes not 180°
5. Model moved sideways during hovering segments



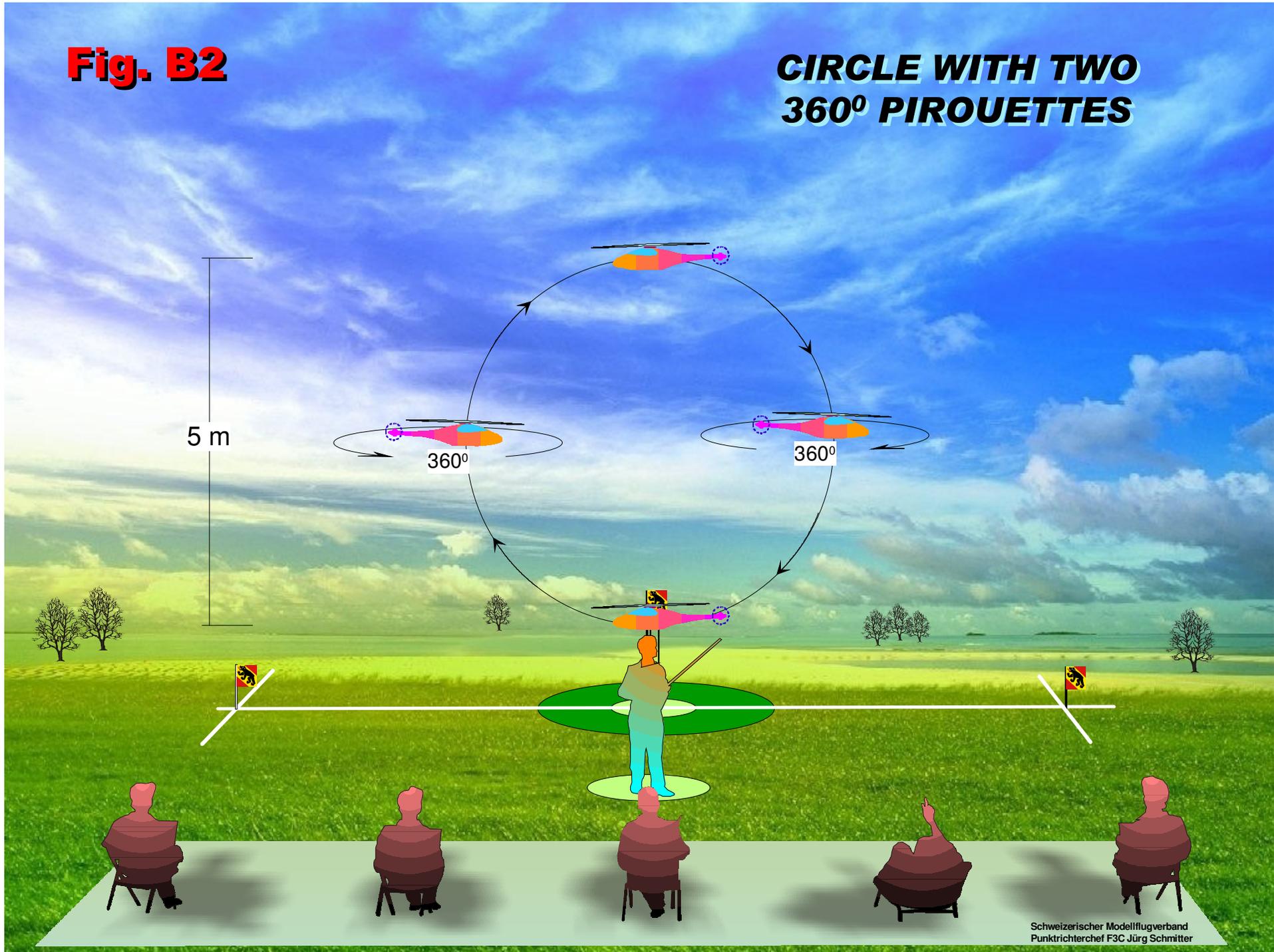
B1. HOURGLASS “1”

(UU)

1	Ascend to eye level and stop 2 secs.	0.5
2	Move backward with simultaneous 180° pirouette and stop 2 secs. over flag	1.0
3	Ascend backward 4m to opposite flag and stop 2 secs.	1.5
4	Move at constant altitude to opposite flag while performing 360° pirouette and stop 2 secs.	2.0
5	Descend backwards 4m to opposite flag and stop 2 secs	1.5
6	Move forward with simultaneous 180° pirouette and stop 2 secs. over flag	1.0
7	Descend to helipad	0.5
8	Overall impression	2.0

Fig. B2

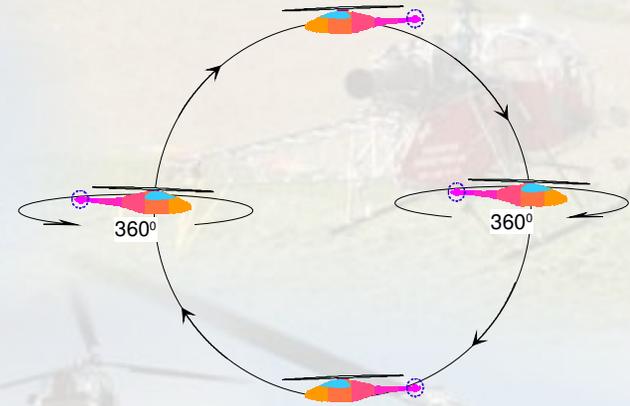
**CIRCLE WITH TWO
360° PIROUETTES**



Reasons for downgrading

1. Circle not round
2. Pirouettes not 360°
3. Circle not 5m in diameter
4. Pirouettes flown in same direction (**Score = 0**)

5 m



B2. CIRCLE WITH TWO 360° PIROUETTES

(UU)

1	Ascend to eye level and stop 2 secs.	0.5
2	Ascending half circle with simultaneous 360° pirouette and stop 2 secs. over helipad	3.5
3	Descending half circle with simultaneous 360° pirouette and stop 2 secs. over helipad.	3.5
4	Descend to helipad	0.5
5	Overall impression	2.0

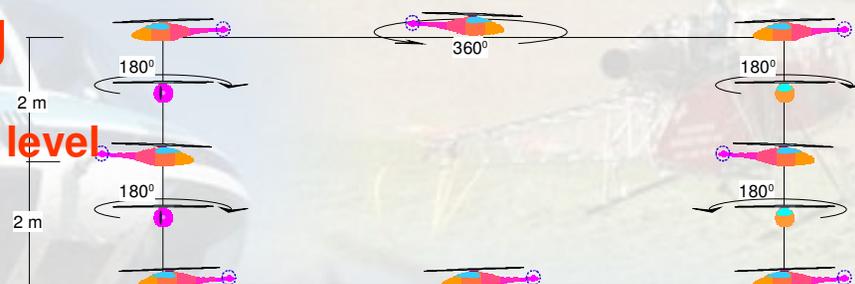
Fig. B3

**RECTANGLE WITH
180° PIROUETTES**



Reasons for downgrading

1. Top of maneuver not 4m above eye level
2. Stops were not 2 secs.
3. Pirouettes not 180°
4. Pirouette not 360°
5. Model moved sideways during hover
6. Ascent and descent not straight and vertical



B3. RECTANGLE WITH 180° PIROUETTES

(UU)

1	Ascend to eye level and stop 2 secs.	0.5
2	Move backward and stop 2 secs. over flag	0.5
3	Ascend 4m with two opposite 180° pirouettes and stop 2 secs.	2.0
4	Move at constant altitude to opposite flag with simultaneous 360° pirouette and stop 2 secs.	2.0
5	Descend 4m with two opposite 180° pirouettes and stop 2 secs.	2.0
6	Move backward to center and stop 2 secs.	0.5
7	Descend to helipad	0.5
8	Overall impression	2.0

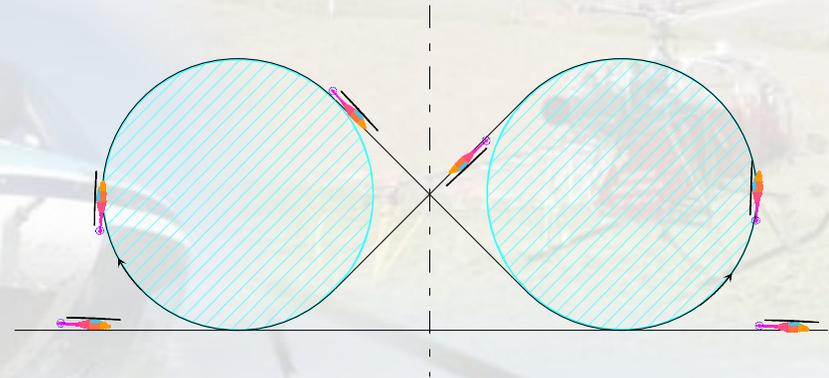
Fig. B4

HORIZONTAL EIGHT



Reasons for downgrading

1. Entry and exit not straight
2. Loops not same size
3. Crossover not 45°
4. Crossover not centered
5. Model drifted away or toward the judges



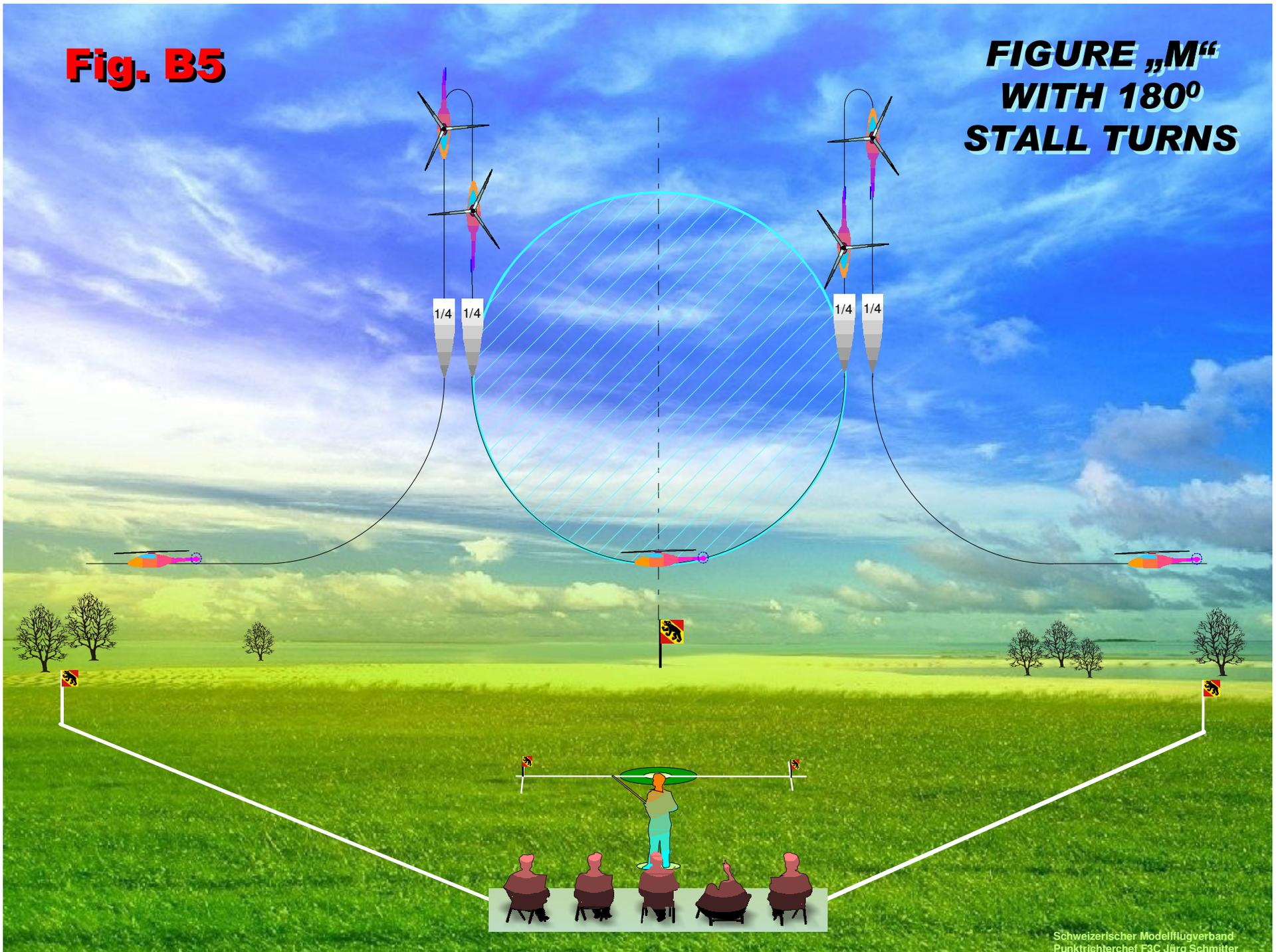
B4. HORIZONTAL EIGHT

(DD)

1	10 m minimum straight and level entry	0.5
2	5/8 inside loop and 45° descent	2.5
3	3/4 outside loop and 45° descent	4.0
4	1/4 inside loop and 10m minimum straight and level exit	1.0
5	Overall impression	2.0

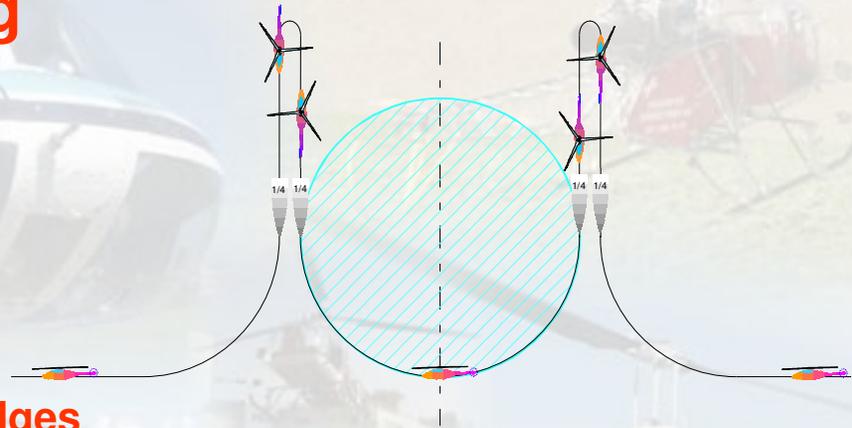
Fig. B5

**FIGURE „M“
WITH 180°
STALL TURNS**



Reasons for downgrading

1. Model does not climb vertically
2. Stall turns not 180°
3. 1/4 Rolls not 90°
4. Rolls were not at same altitude
5. Model drifted away or toward the judges
6. Stall turns not at same altitude



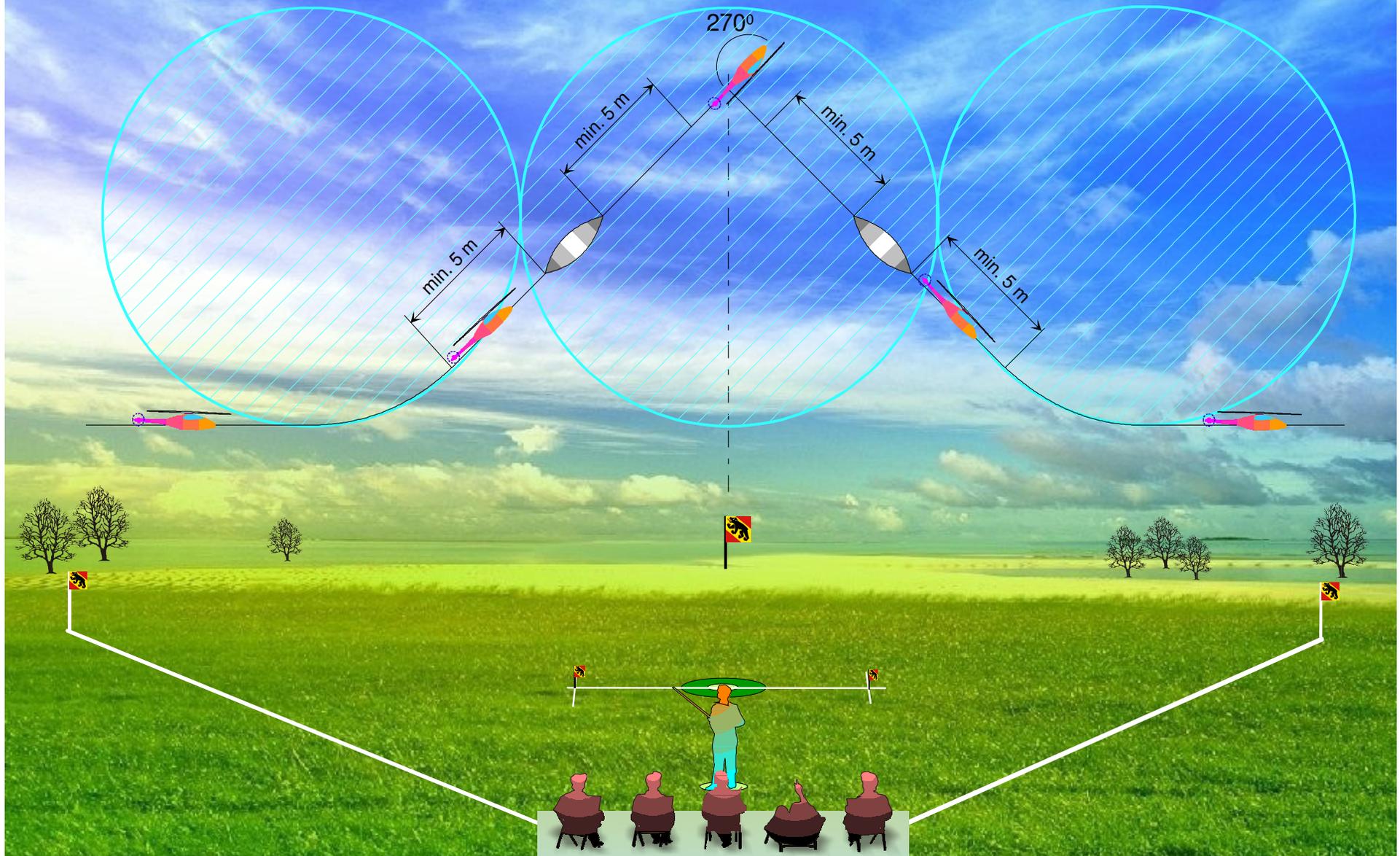
B5. FIGURE “M” WITH 180° STALL TURNS

(UU)

1	10 m straight and level entry	0.5
2	1/4 inside loop with following 1/4 roll	1.0
3	Additional ascent followed by 180° stall turn	1.0
4	Descent with 1/4 roll	1.0
5	1/2 inside loop with with following 1/4 roll	1.5
6	Additional ascent followed by 180° stall turn	1.0
7	Descent with 1/4 roll	1.0
8	1/4 inside loop followed by 10m minimum straight and level exit	1.0
9	Overall impression	2.0

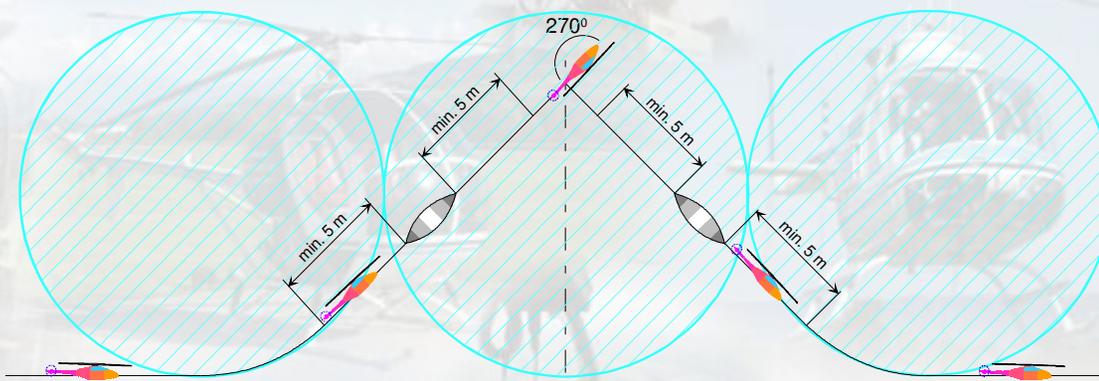
Fig. B6

COBRA ROLL WITH HALF ROLLS AND PUSHED FLIP



Reasons for downgrading

1. Ascent and descent segments were not 45°
2. Straight segments. before and after ½ rolls were not 5m
3. Pushed flip not centered nor 270°
4. Model moved horizontally or vertically during flip



B6. COBRA ROLL WITH HALF ROLLS AND PUSHED FLIP (DD)

1	10m minimum straight and level entry	0.5
2	45° 5m ascent and first ½ roll	1.5
3	45° 5m ascent	0.5
4	Pushed 270° flip	3.0
5	45° 5m descent and second ½ roll	1.5
6	45° 5m descent and 10m minimum straight and level exit	1.0
7	Overall impression	2.0

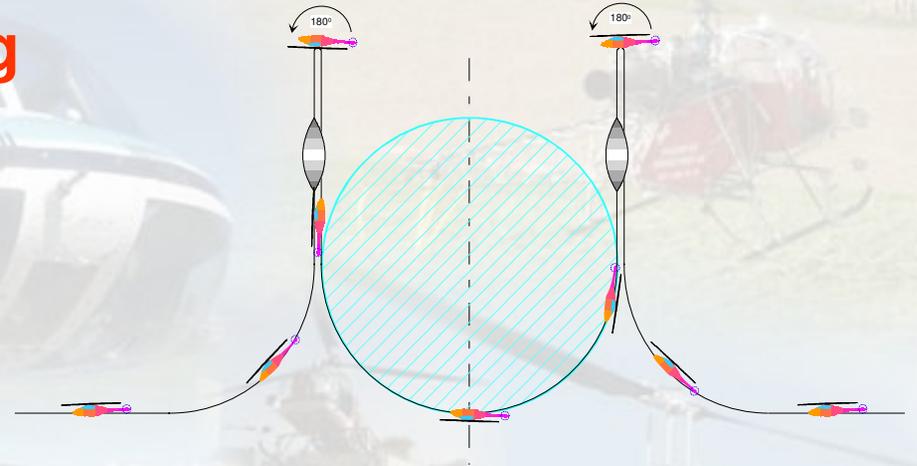
Fig. B7

**DUAL FLIP WITH
HALF OUTSIDE
LOOP**



Reasons for downgrading

1. Model does not climb vertically
2. Flips were not 180°
3. ½ rolls were not 180°
4. Rolls were not at same altitude
5. Flips were not at same altitude
6. Model drifted away or toward the judges



B7. DUAL FLIP WITH HALF OUTSIDE LOOP

(UU)

1	10 m minimum straight and level entry	0.5
2	¼ inside loop with following ascent	1.0
3	½ pushed flip and descent	1.0
4	½ roll with following ½ outside loop	2.5
5	Ascent to same altitude followed by ½ pulled flip	1.0
6	Descent followed by ½ roll	1.0
7	¼ inside loop followed by 10m minimum straight and level exit	1.0
8	Overall impression	2.0

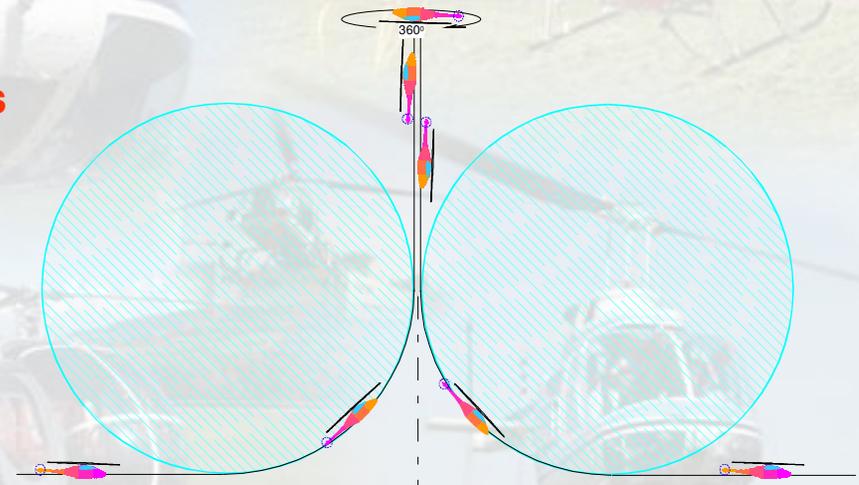
Fig. B8

**PULLUP WITH 360°
INVERTED PIROUETTE**



Reasons for downgrading

1. Vertical segments not vertical/parallel
2. Model drifted away or toward the judges
3. Pirouette not 360°
4. Pulled flips not 90°



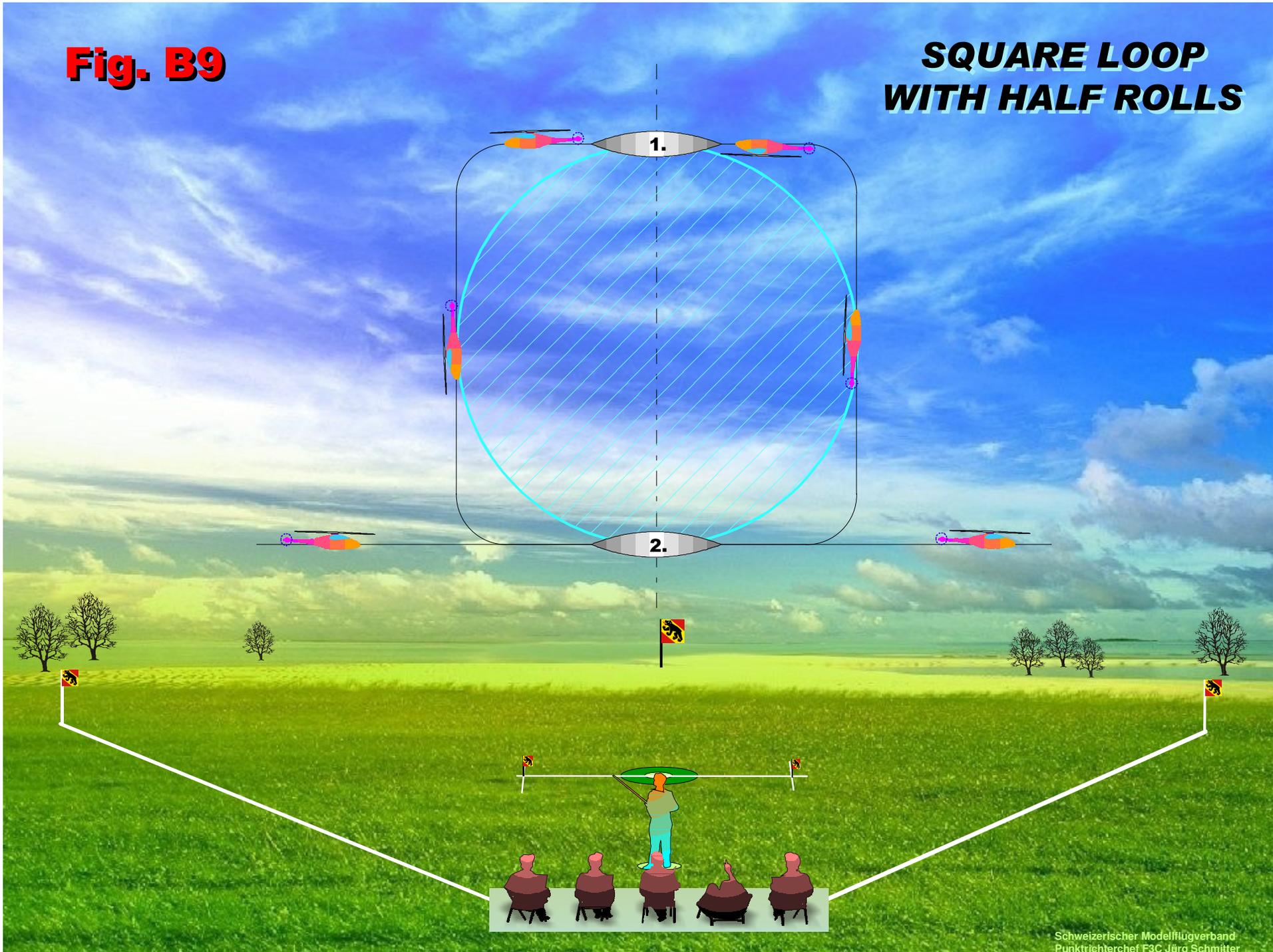
B8. PULLUP WITH 360° INVERTED PIROUETTE

(DD)

1	10m minimum straight and level entry	0.5
2	¼ inside loop and ascent	1.0
3	90° pulled flip and stop .	1.0
4	Slow 360° inverted pirouette (min. 4 secs.) and stop	3.0
5	90° pulled flip	1.0
6	Vertical descent followed by ¼ inside loop	1.0
7	10m minimum straight and level exit	0.5
8	Overall impression	2.0

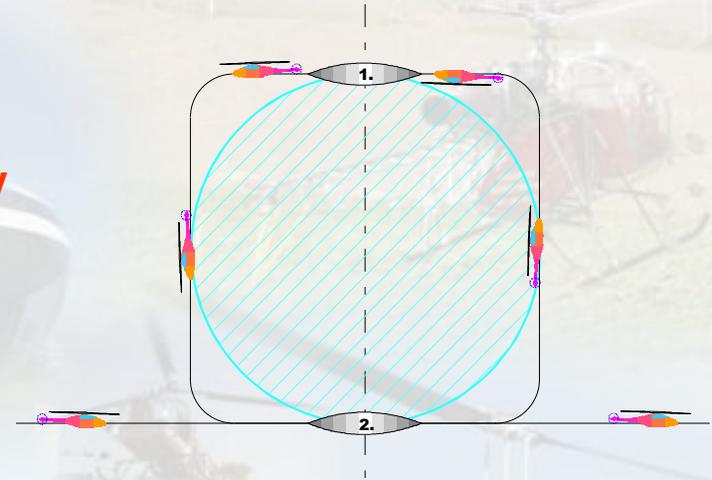
Fig. B9

**SQUARE LOOP
WITH HALF ROLLS**



Reasons for downgrading

1. Model does not ascend or descend vertically
2. Half rolls not 180°
3. Rolls not centered
4. Four sides not of same length
5. ¼ inside and outside loops too large
6. Model drifted away or toward the judges



B9. SQUARE LOOP WITH HALF ROLLS

(UU)

1	10m minimum straight and level entry	0.5
2	Level flight. ¼ inside loop followed by vertical ascent	1.0
3	Additional ¼ inside loop followed by first ½ roll	2.5
4	¼ outside loop followed by vertical descent	1.0
5	Additional ¼ outside loop followed by second ½ roll and level flight	2.5
6	10m minimum straight and level exit	0.5
7	Overall impression	2.0

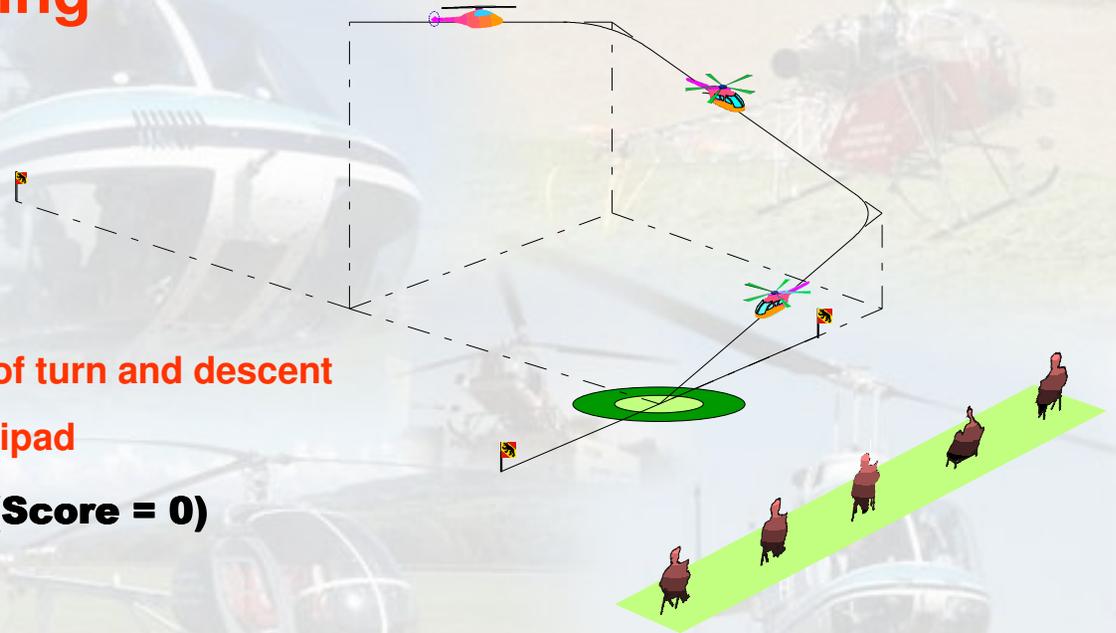
Fig. B10

AUTOROTATION WITH TWO 90° TURNS



Reasons for downgrading

1. Model made hard landing
2. Model landed with forward speed
3. Turns were not 90°
4. Model did not maintain constant rate of turn and descent
5. Flight path was stretched to reach helipad
6. Motor was running during maneuver (**Score = 0**)



B10. AUTOROTATION WITH TWO 90° TURNS

(DU)

1	First straight segment and 90° turn	2.0
2	Second straight segment and 90° turn	2.0
3	Third straight segment starting at 1/3 starting altitude	1.0
4	Landing	4.0
5	Overall impression	1.0

Max. score 10 = Landing gear completely inside 1m circle and parallel

Max. score 9 = Rotorshaft points to inside of 1m circle and parallel

Max. score 8 = Landing gear completely inside 3m circle and parallel

Max. score 7 = Rotorshaft points to inside of 3m circle and parallel

Max. score 6 = Rotorshaft points to outside of 3m circle

Maneuver Schedule C

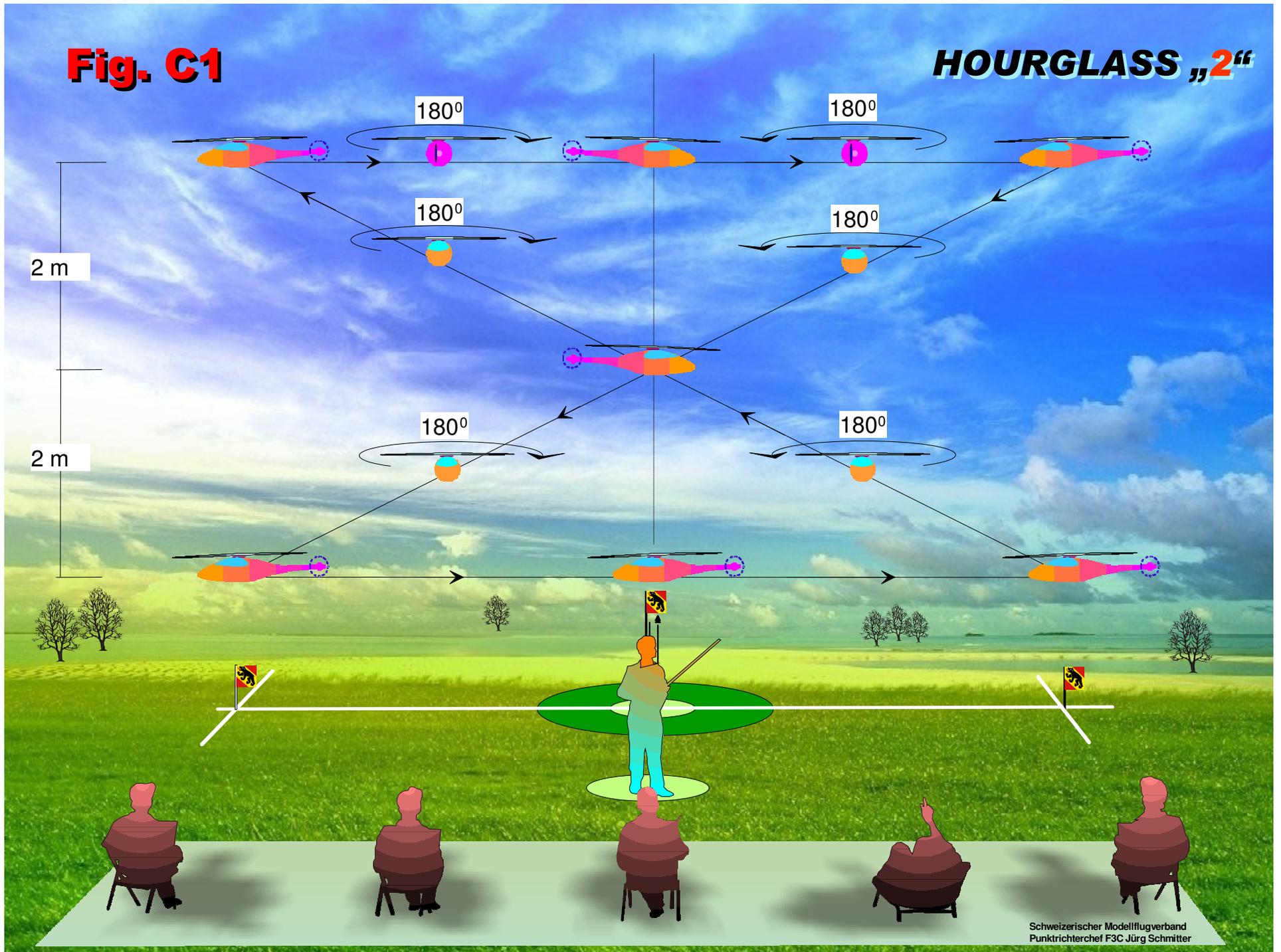


For the years 2008 & 2009

Jürg Schmitter
Swiss F3C Judge

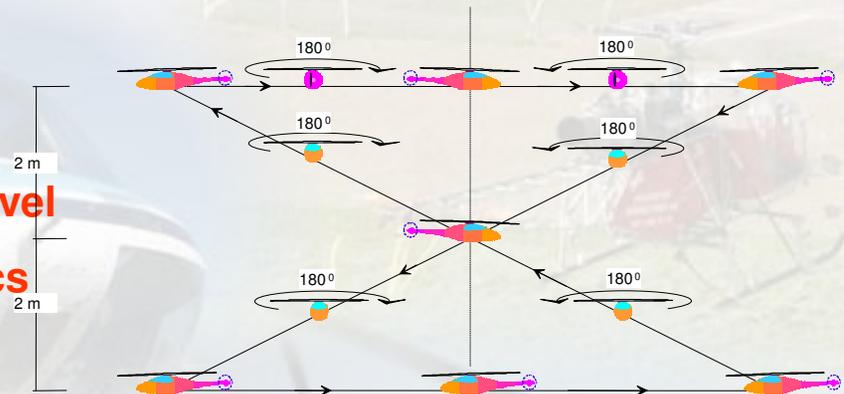
Fig. C1

HOURGLASS „2“



Reasons for downgrading

1. Top of maneuver not 4m above eye level
2. Model did not stop for minimum 2 secs
3. Pirouettes not 180°
4. 180° pirouettes not finished in center
5. Model moved toward or away from the judges



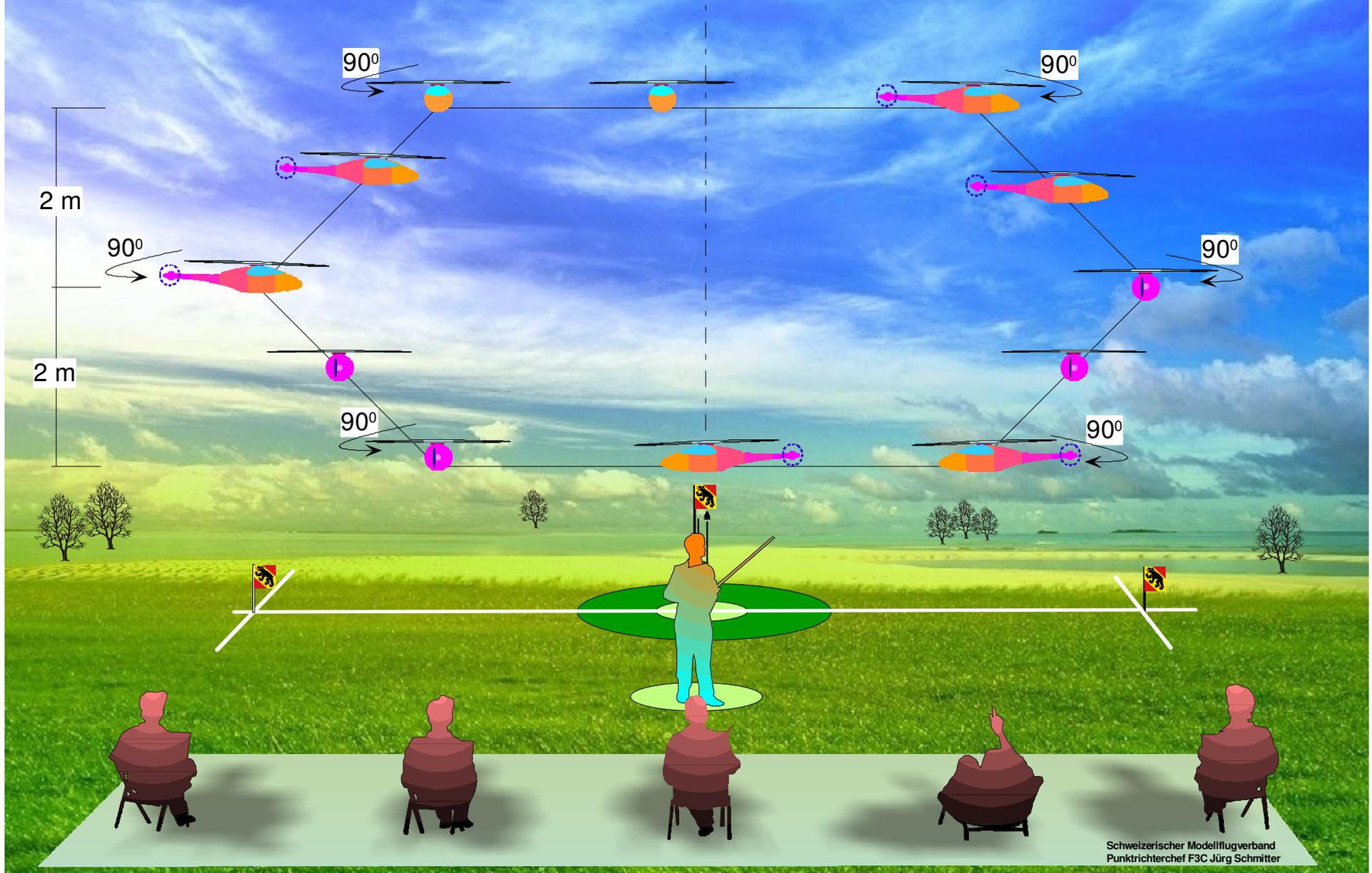
C1. HOURGLASS “2”

(UU)

1	Ascend to EL and stop	0.5
2	Move backward and stop over flag	0.5
3	Ascend to 4m AEL over opposite flag while performing two 180° opposing pirouettes and stop	2.0
4	Move backward at 4m toward other flag with two opposing 180° pirouettes and stop	2.0
5	Descend to EL over opposite flag while performing two 180° opposing pirouettes and stop	2.0
6	Move backward to center and stop	0.5
7	Descend to helipad	0.5
8	Overall impression	2.0

Fig. C2

**PIROUETTING
HEXAGON**



Reasons for downgrading

1. Top of maneuver not 4m above EL
2. Model does not stop for 2 secs.
3. Pirouettes not 90°
4. Pirouettes 2 & 5 not at 2m
5. Pirouettes 1. 2 and 3 not flown in same direction (**Score = 0**)
6. Pirouettes 4. 5 and 6 not flown in opposite direction (**Score = 0**)



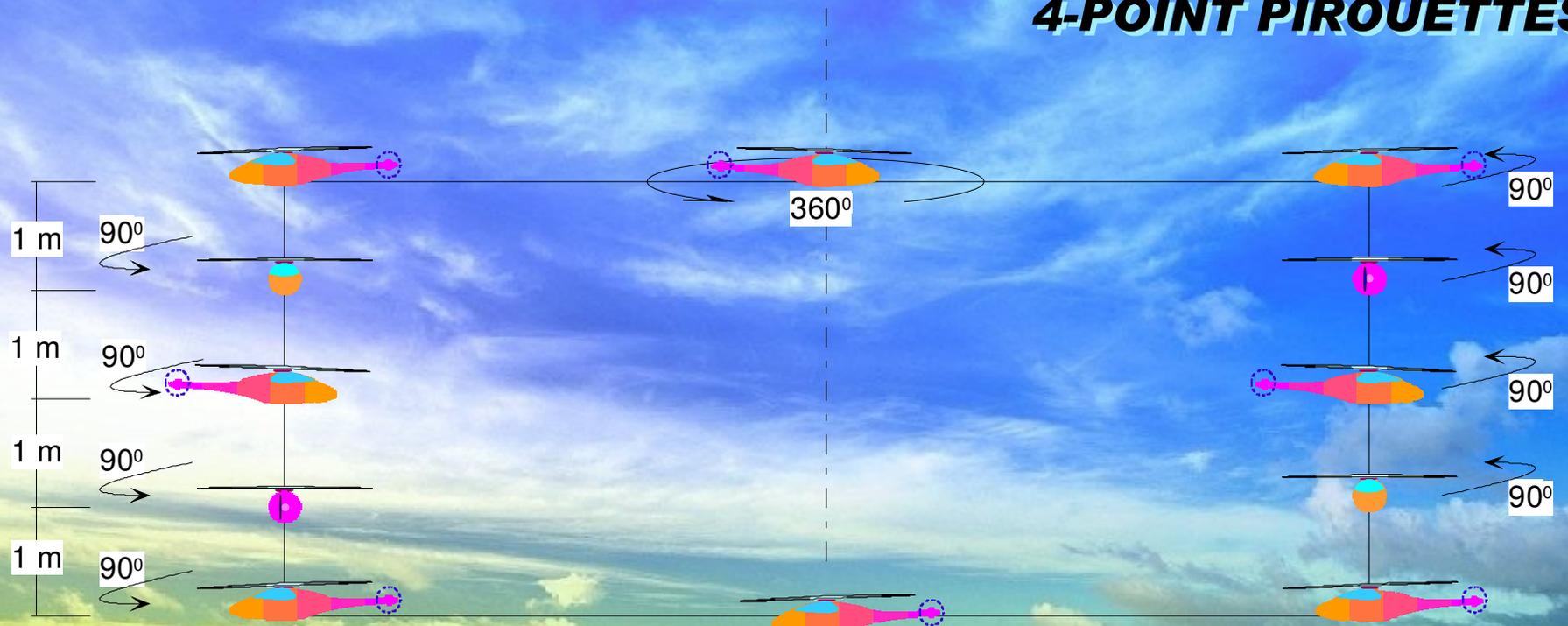
C2. PIROUETTING HEXAGON

(UU)

1	Ascend to EL and stop. Move backward to first halfway line and stop.	1.0
2	90° pirouette and stop. Ascend sideways/diagonally to 2m over flag and stop	1.0
3	90° pirouette in same direction as first and stop.	1.0
4	Ascend backward to 4m over halfway line and stop. 90° pirouette in same direction as first and stop	1.0
5	Move sideways to other halfway line and stop. 90° pirouette opposite to previous three and stop	1.0
6	Descend backward/diagonally to other flag and stop. 90° pirouette in same direction and stop	1.0
7	Descend sideways to second halfway line and stop. 90° pirouette in same direction and stop	1.0
8	Move backward to center and descend to helipad	1.0
9	Overall impression	2.0

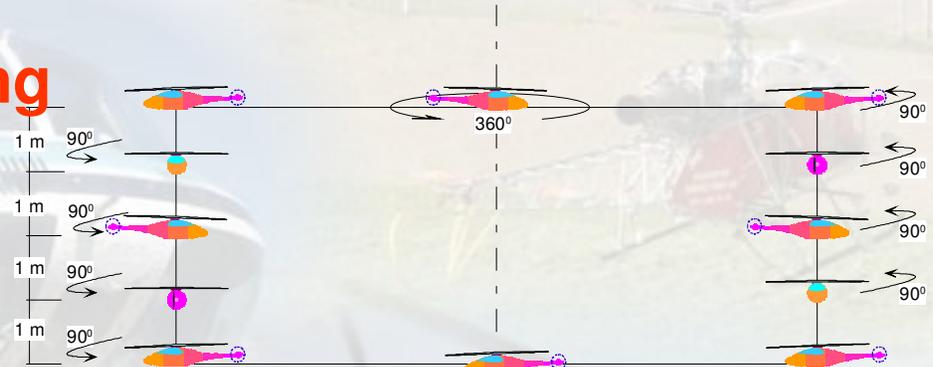
Fig. C3

RECTANGLE WITH 4-POINT PIROUETTES



Reasons for downgrading

1. Top of maneuver not at 4m
2. Model does not stop for 2 secs.
3. Pirouettes not 90°
4. Pirouettes not at every meter
5. Model moved sideways



C3. RECTANGLE WITH 4-POINT PIROUETTES

(UU)

1	Ascend to EL and stop	0.5
2	Model moves backward to first flag and stops	0.5
3	Ascend 1m with simultaneous 90° pirouette and stop. Repeat 3 times	2.0
4	Model moves at 4m above EL to opposite flag while simultaneously performing a 360° pirouette in either direction	2.0
5	Descend 1m with simultaneous 90° pirouette and stop. Repeat 3 times	2.0
6	Move backward to center and stop	0.5
7	Descend to helipad and land	0.5
8	Overall impression	2.0

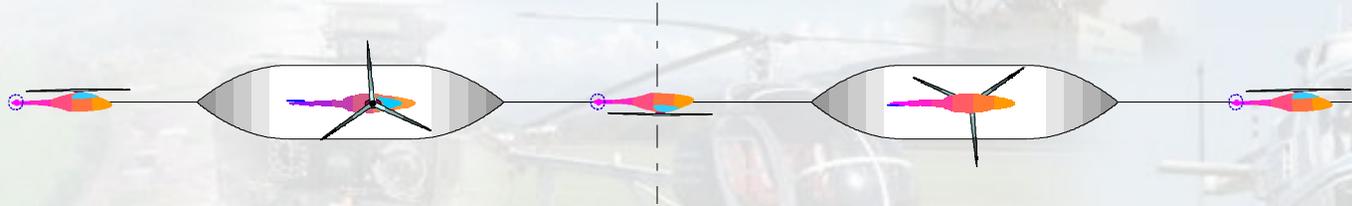
Fig. C4

4-POINT ROLL



Reasons for downgrading

1. Maneuver duration less than (4) seconds
2. Inverted flight segment not in center
3. Lengths of level segments not the same



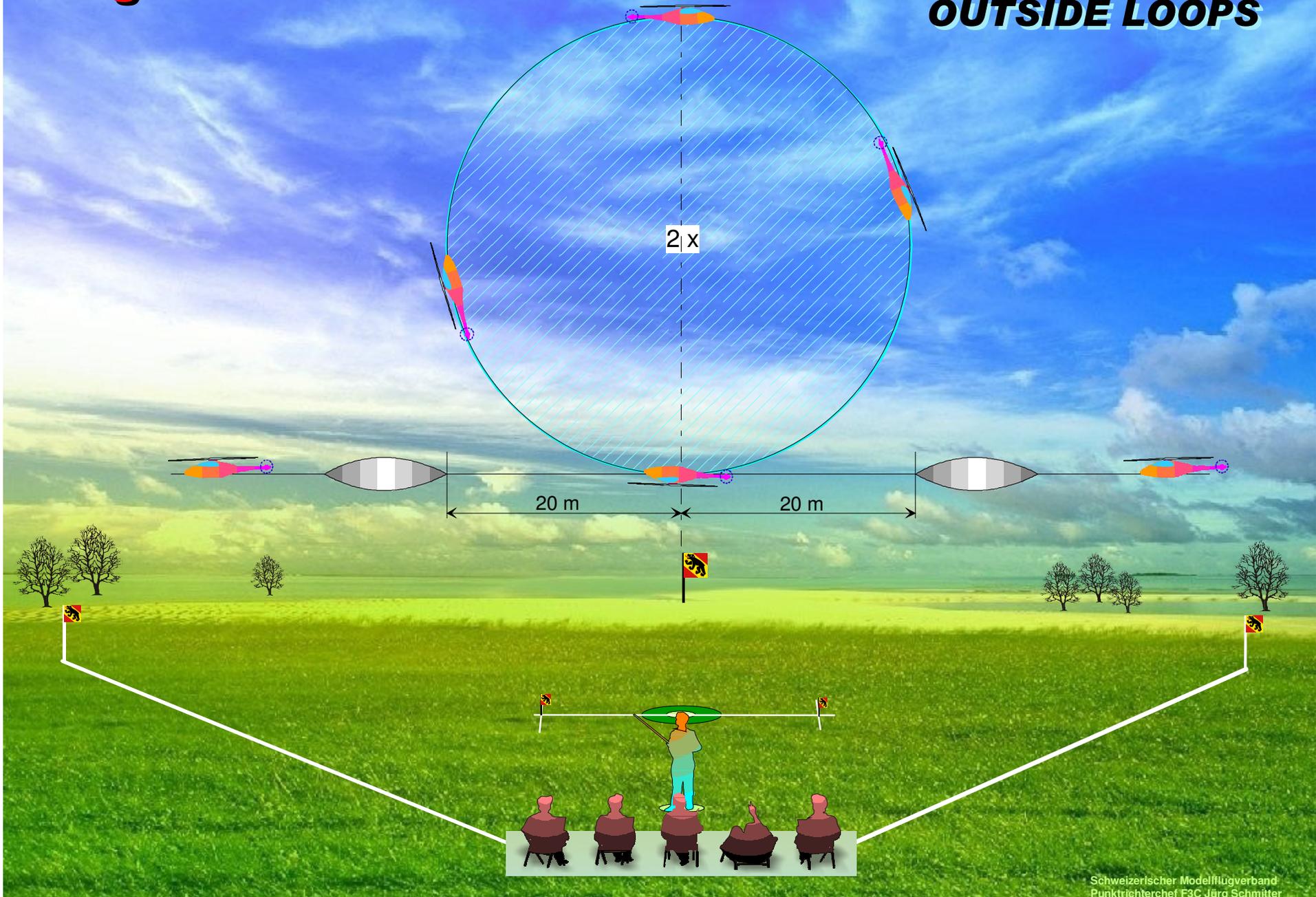
C4. 4-POINT ROLL

(DD)

1	10m minimum straight and level entry	0.5
2	¼ roll to straight and level knife edge flight	2.0
3	¼ roll to straight and level inverted flight	1.5
4	¼ roll to straight and level knife edge flight	2.0
5	¼ roll to straight and level upright flight and 10m minimum exit	2.0
6	Overall impression	2.0

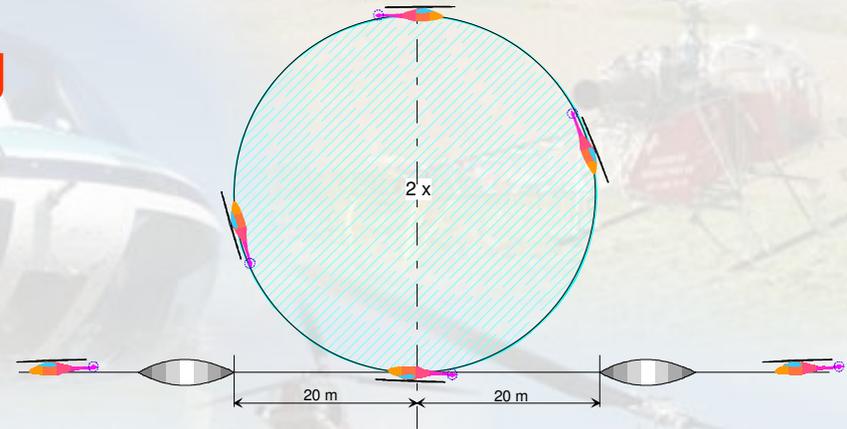
Fig. C5

**TWO REVERSE
OUTSIDE LOOPS**



Reasons for downgrading

1. Rolls not 180°
2. Straight and level entry/exit not 20 m
3. Loops not superimposed
4. Loops not round
5. Model drifted away or toward judges



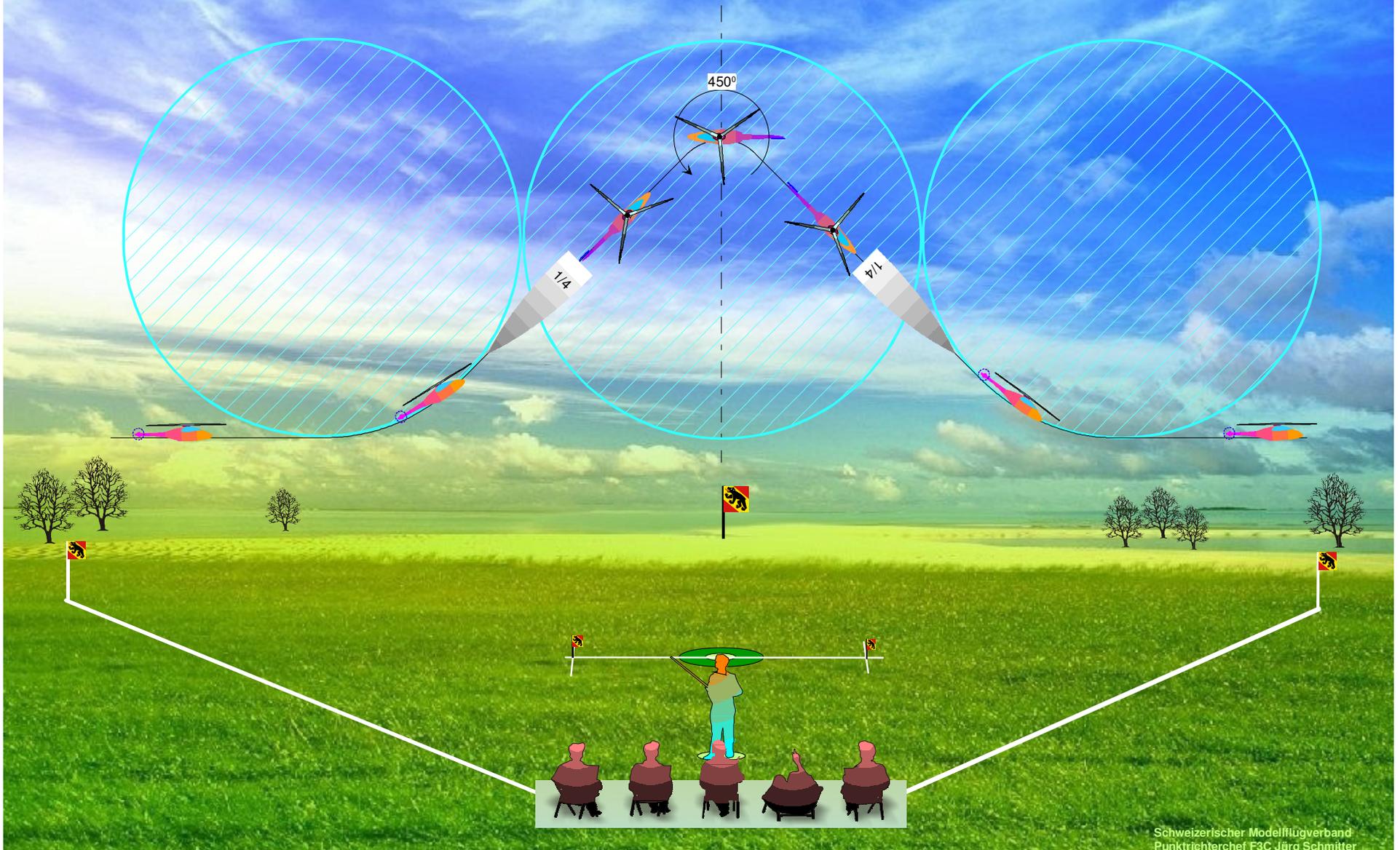
C5. TWO REVERSE OUTSIDE LOOPS

(UU)

1	10m minimum straight and level entry	0.5
2	½ roll and 20m level entry	1.0
3	1. Outside loop	2.5
4	2. Outside loop	2.5
5	20m level exit with ½ roll	1.0
6	10m minimum straight and level exit	0.5
7	Overall impression	2.0

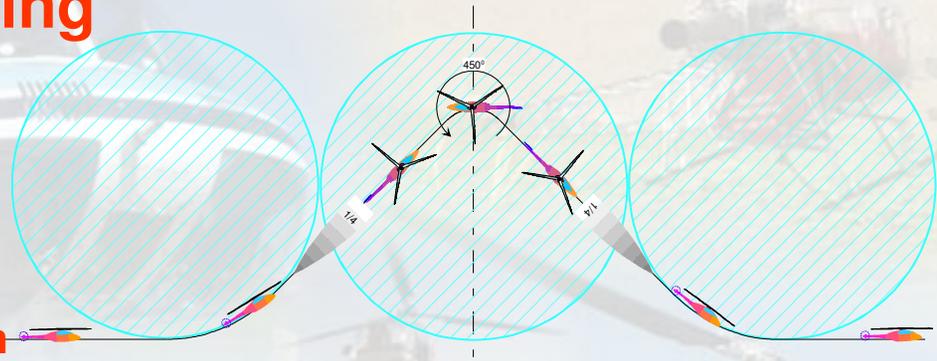
Fig. C6

KNIFE EDGE COBRA ROLL WITH 450° PIROUETTE



Reasons for downgrading

1. Pirouette not 450°
2. Knife edge flight not at 90°
3. ¼ rolls not at same altitude
4. 45° segments not of equal length
5. Entry and exit not at same altitude and not a minimum of 10m
6. Model drifted away from or toward judges



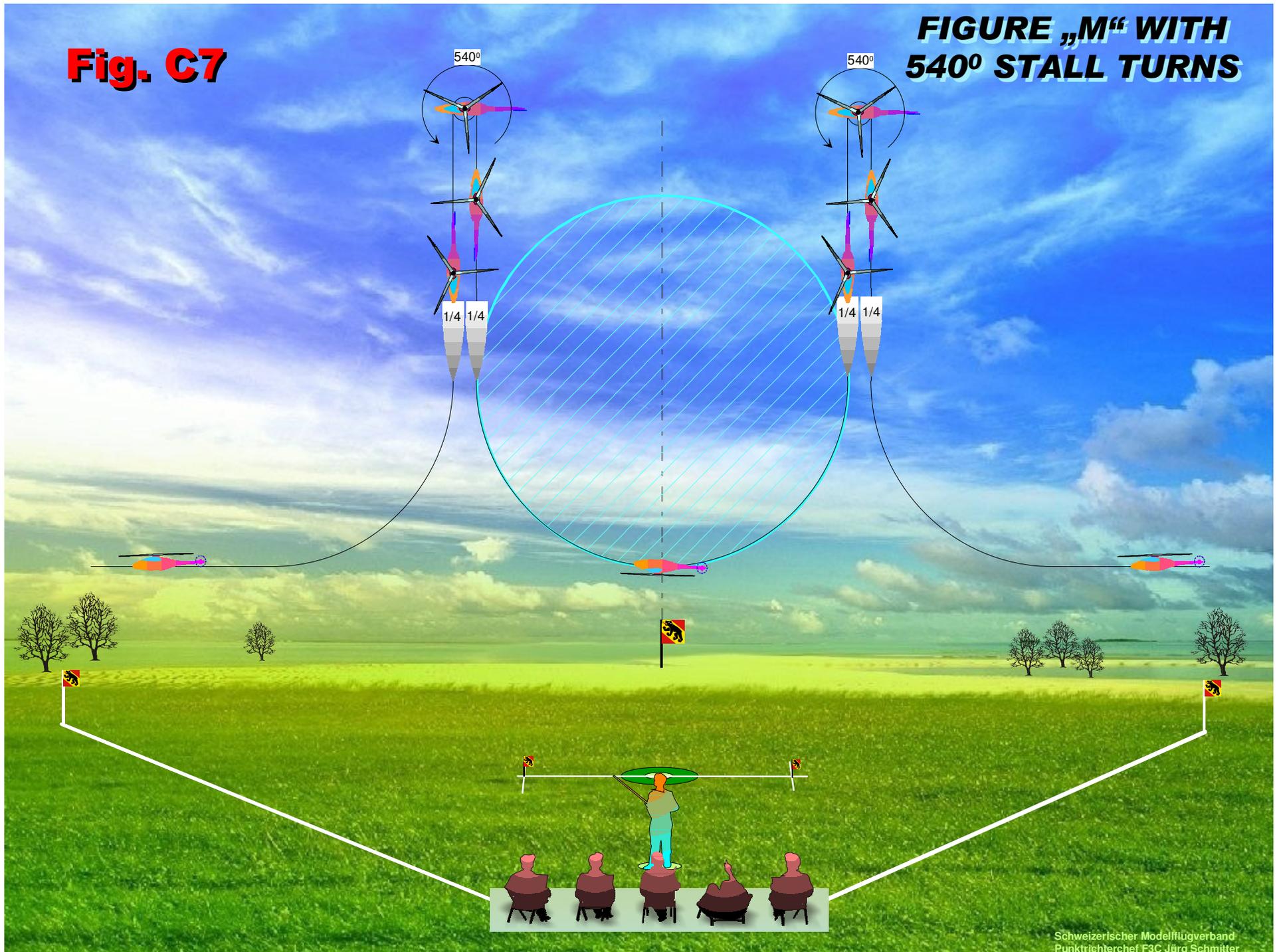
C6. KNIFE EDGE COBRA ROLL WITH 450° PIROUETTE

(DD)

1	10m minimum straight and level entry	0.5
2	45° ascent and ¼ roll	1.0
3	Recognizable 45° knife edge ascent to center line	1.0
4	450° pirouette at apex	3.0
5	Recognizable 45° knife edge descent	1.0
6	¼ roll and 45° descent to same altitude as entry	1.0
7	10m minimum straight and level exit	0.5
8	Overall impression	2.0

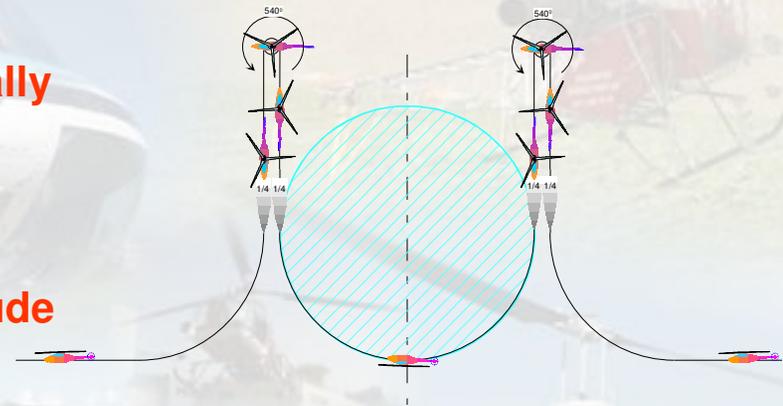
Fig. C7

**FIGURE „M“ WITH
540° STALL TURNS**



Reasons for downgrading

1. Model did not ascend or descend vertically
2. Stall turns not 540°
3. ¼ rolls not 90°
4. Rolls and/or stall turns not at same altitude
5. ½ outside loop not centered
6. Model drifted away from or toward the judges



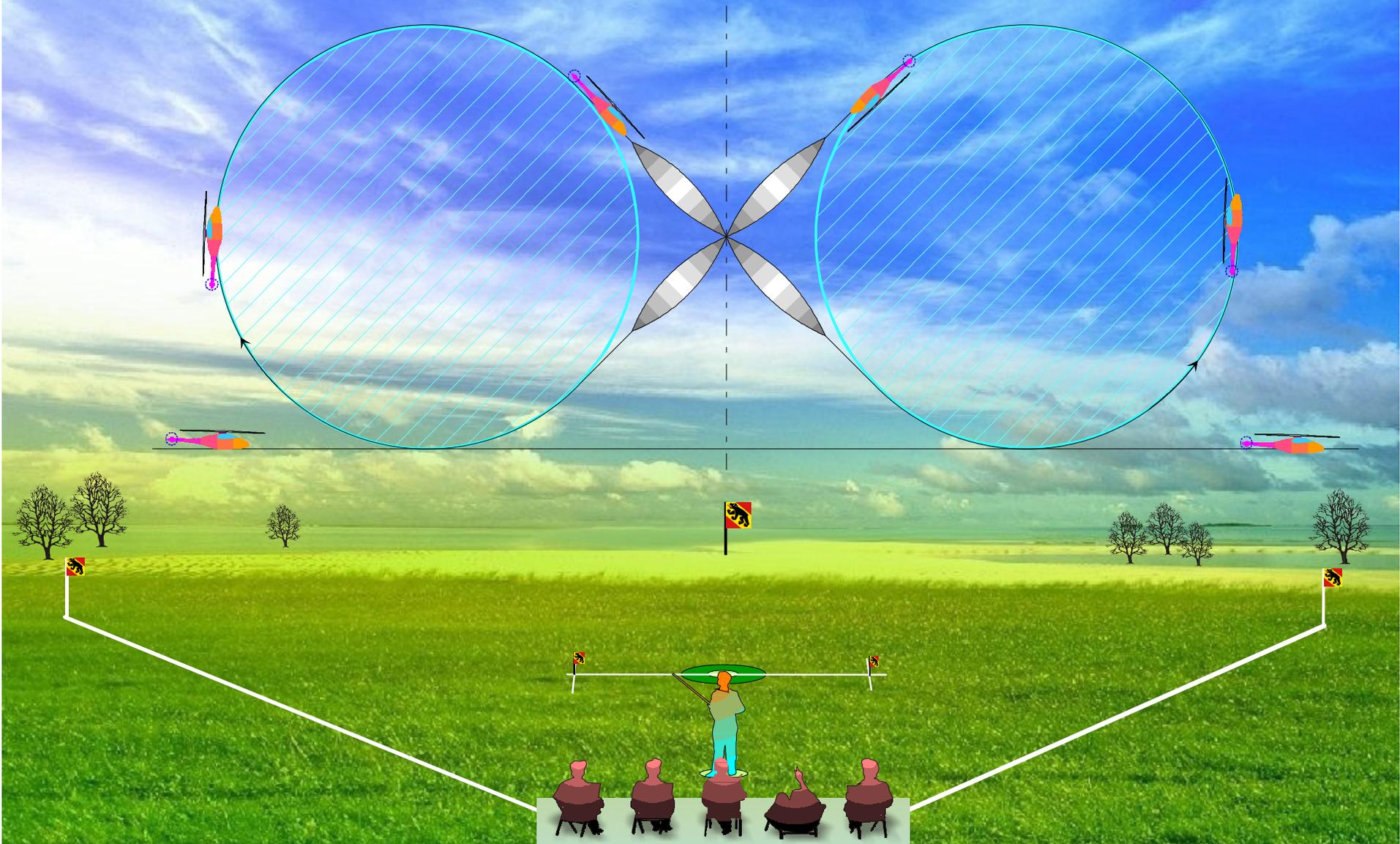
C7. FIGURE “M” WITH 540° STALL TURNS

(UU)

1	10m minimum straight and level entry	0.5
2	¼ inside loop with following ¼ roll	1.0
3	Additional ascent followed by 540° stall turn	1.5
4	Descent followed by ¼ roll	0.5
5	½ outside loop followed by ¼ roll	1.5
6	Additional ascent followed by 540° stall turn	1.5
7	Descent followed by ¼ roll	0.5
8	¼ inside loop and 10m minimum straight and level exit	1.0
9	Overall impression	2.0

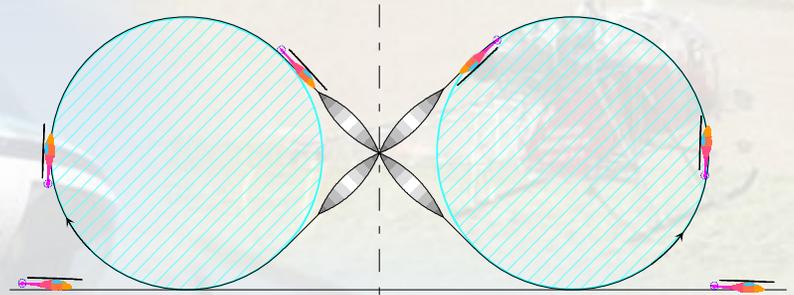
Fig. C8

HORIZONTAL EIGHT WITH ROLLS



Reasons for downgrading

1. Rolls were not 360°
2. The two rolls did not cross at the center
3. Loops were of different sizes
4. Straight segments were not at 45°
5. Model drifted away from or toward the judges



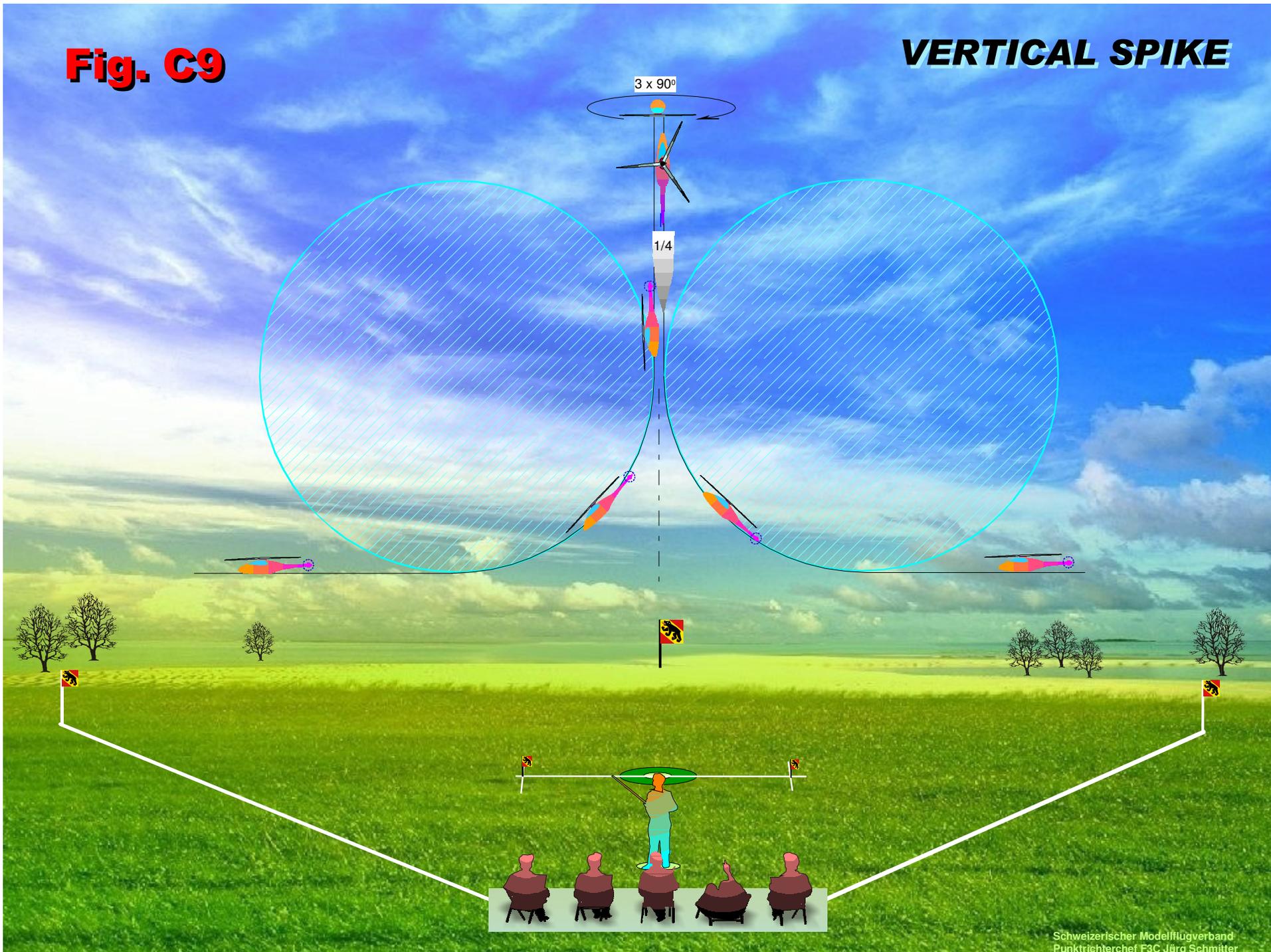
C8. HORIZONTAL EIGHT WITH ROLLS

(DD)

1	10m minimum straight and level entry	0.5
2	5/8 inside loop and 45° descent	1.0
3	First roll	2.0
4	¾ outside loop and 45° descent	2.0
5	Second roll and 1/8 inside loop	2.0
6	10m minimum straight and level exit	0.5
7	Overall impression	2.0

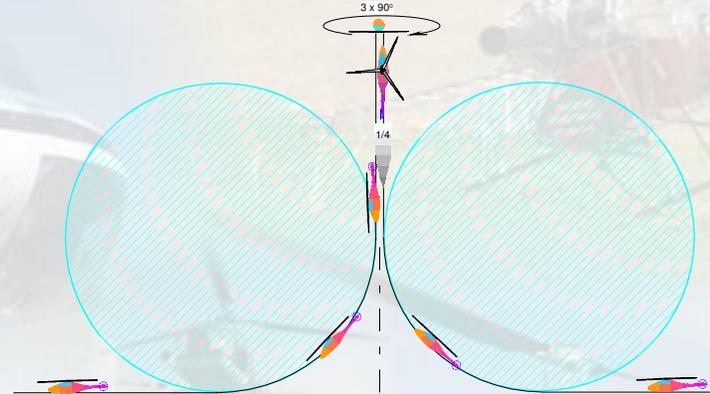
Fig. C9

VERTICAL SPIKE



Reasons for downgrading

1. Vertical segments not superimposed
2. Pulled flips not 90°
3. Three pirouettes not 90°
4. Pirouettes too fast
5. Model moved vertically or horizontally
6. Entry and exit not at same altitude



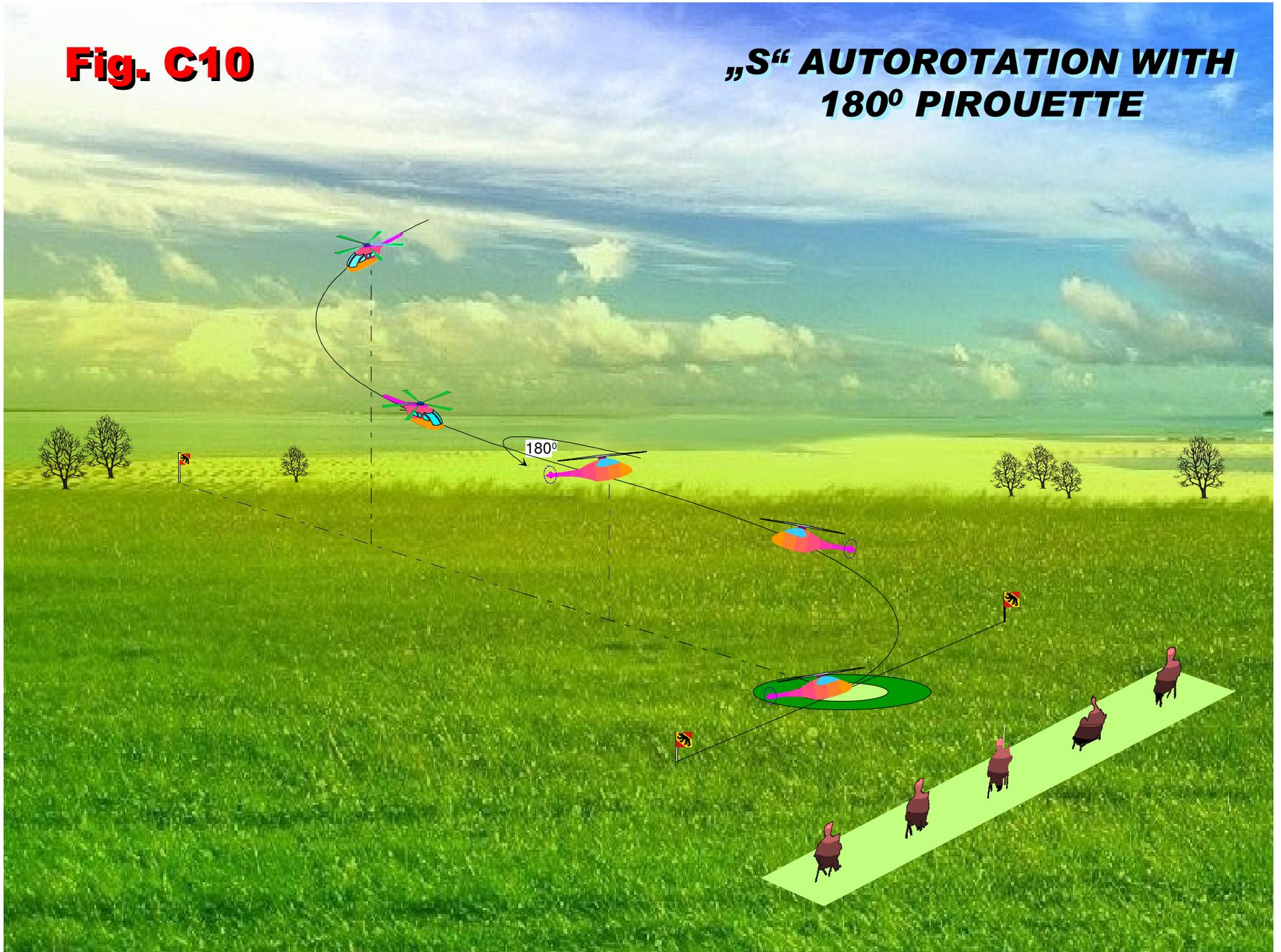
C9. VERTICAL SPIKE

(UU)

1	10m minimum straight and level entry	0.5
2	¼ inside loop followed by vertical ascent and ¼ roll	1.0
3	At end of ascent 90° pulled flip to inverted facing judges and stop 3 secs	1.0
4	Slow 90° inverted pirouette and stop 1 sec	2.0
5	Slow 90° inverted pirouette and stop 1 sec	2.0
6	Slow 90° inverted pirouette and stop 1 sec	2.0
7	90° pulled flip. vertical descent and ¼ inside loop	1.0
8	10m minimum straight and level exit	0.5
9	Overall impression	2.0

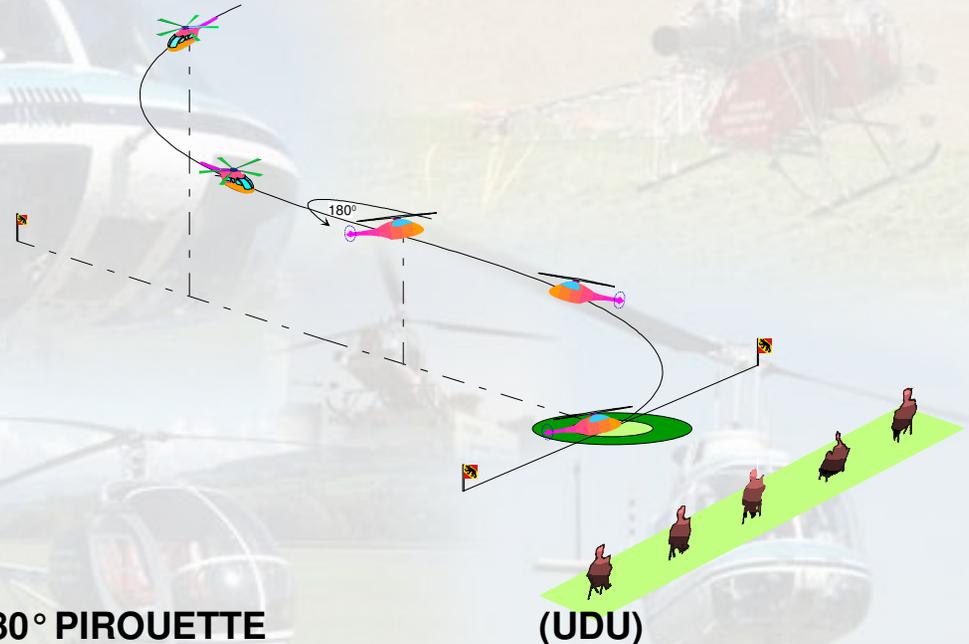
Fig. C10

**„S“ AUTOROTATION WITH
180° PIROUETTE**



Reasons for downgrading

1. Model made a hard landing
2. Model landed with backward speed
3. Model did not execute two 180° turns
4. Pirouette was not 180°
5. Flight path was stretched to reach helipad
6. If motor was still running (**Score = 0**)



C10. "S" AUTOROTATION WITH 180° PIROUETTE

(UDU)

1	Flying upwind and after crossing vertical plane model makes a 180° turn toward the pilot	1.0
2	As model crosses vertical plane again it performs a quick 180° pirouette	2.0
3	Flying backwards model makes another 180° turn toward pilot and helipad	2.0
4	Landing	4.0
5	Overall impression	1.0

Max. score 10 = Landing gear completely inside 1m circle and parallel

Max. score 9 = Rotorshaft points to inside of 1m circle and parallel

Max. score 8 = Landing gear completely inside 3m circle and parallel

Max. score 7 = Rotorshaft points to inside of 3m circle and parallel

Max. score 6 = Rotorshaft points to outside of circles