Rules for the conduct of Nordic Aerobatic Championships for Powered and Glider Aircraft

These rules are annually approved by Meeting Annual Nordic Information and Coordination, MANIAC.
Originally approved 2019-04-28.
Revised 2020-02-28.
Revised 2021-07-02.
Revised 2022-02-25
Each country shall appoint one delegate to MANIAC. In the case of a voting, each country has one vote to be casted by the appointed delegate. In case of equal number of votes the suggestion is rejected.

The basis are these documents:
IAC Official Rule Book 2022
In Advanced and Unlimited power, specified paragraphs of FAI Sporting Code Section 6 - part 1 Edition 2022.
In Advanced and Unlimited glider, specified paragraphs of FAI Sporting Code Section 6 - part 2 Edition 2022. The organization, Sportsman and Intermediate categories are mainly performed according to the IAC Rule Book.
In Advanced and Unlimited categories, the FAI CIVA Free known programs and those differences between IAC and FAI Rules that are important for the pilot such as the wing wag are used.
Rule changes will be decided by MANIAC when the rule books for the year are available, the rules will be updated, and a separate telephone meeting will approve the changes.
If, during a contest, the rules cannot be followed, the contest director together with the chief judge may suggest changes. These changes must be approved by the jury and the majority of the pilots.

General
Aim of the Nordic Aerobatic Championships
The aim is to establish individual Nordic Aerobatic Champions in Primary, Sportsman, Intermediate, Advanced and Unlimited categories in both power and glider aerobatics.
The competition format is intended to be completed in around 2-3 days; training excluded.
It should be easy for beginners to participate, but also prepare national teams for participation in international FAI competitions.
Men and women compete in the same category on equal terms.
The relevant medals, cups or trophies shall be presented to the winners at the closing ceremony.

Judges Quick Reference

No changes except.

For FAI CIVA, Advanced and Unlimited Glider, the bank angle must be exactly 60 degrees for all turns.

IAC §2 Contest Staff

This text replaces the IAC Rule book.

Contest Director
The Contest Director is the general manager of the event, responsible for all contest planning, delegation, appointments, and operations. The **Contest Director** also assumes the duties of **Safety Director**, **Medical Director**, **Volunteer Coordinator** and **Technical Committee.**

Chief Judge
Chief Judge may also perform scoring. A Chief Judge from outside the Nordic countries is preferred but not mandatory.

Scoring Director
The **Scoring Director** assumes the duties of the **Registrar** and the **Contest Office**.

Starter
For safety reasons and the smooth execution of the contest, it is mandatory to have a Starter. The Starter must have direct communication both to the Chief Judge and to the field frequency. The starter will not check neither lap belts, shoulder harness nor that the parachute is secure.

Judges
3-5 Scoring Judges. If no international judges are available, the contest may be conducted using a minimum of 3 national judges. If there are 5 or more judges, the fair play system must be used.
The participating countries are strongly encouraged to bring judges and judges assistants to the competition. The travel cost is carried by the country who brings the judge and judges assistant to the contest.

Judge assistant (Caller)
Optional

Registrar (Skrivare)
Writes down judge grades and remarks.

Boundary and Deadline Judges
Not used.

Jury
A chairman and at least two additional members. The Jury should be selected by the organizer and preferably have members from all participating countries.

IAC §3 Sanctioning and Insurance

This text replaces the IAC Rule book.

Time period

Nordic Championships are held every year.
The Nordic Championships may be combined with the host nation's National Aerobatic Competition.
The hosting nation may choose to combine power and glider or arrange separate competitions.
The dates will be set, at least preliminary, on the yearly MANIAC meeting. Each country will be notified by the Organizer, not later than 4 months before the beginning of the championships, of any general organizational conditions such as entry fee, time, place, entry forms, entry deadline, local rules, etc. All submitted sequences must be submitted in OpenAero format https://openaero.net

Contest Insurance

The aircraft must have an insurance of minimum
EU Regulation 785/2004.
MTOM <500 kg Minimum SDR 750 000
MTOM <1,000 kg Minimum SDR 1 500 000

IAC §4 Registration

This paragraph stands with the following changes.

The organizer will determine the latest date when the entry fee is refunded.

Replace "IAC Official Contest Entry Form" with "Official Contest Entry Form" as published by the organizer

4.2 Entry Forms

The self-briefing form, Appendix 3 must be sent to the organizer.

4.3 Competitor Qualifications

Competitors must hold a valid pilot certificate, aerobatic rating, current medical approval.
FAI Sporting license is not required.

4.6.2 A competitor that arrives late will score zero for all programs already flown and all unknown programs that have already been published.

IAC §5 Technical Matters

This text replaces the IAC Rule book

Aircraft and Equipment Entrance Requirements

A valid certificate of airworthiness or equivalent document issued by the competent aviation authority of the aircraft's state of registration must be produced to the Contest Director for every contest aircraft.

IAC §6 Safety

Safety is always the primary concern. The Contest Director is responsible for the safety matters.

Supplementary Rules and Waivers of Rules

All competitors must observe and adhere to the regulations currently in force in the Organizer's country for air safety as well as the special regulations in force at the contest aerodrome.
Any additional local rules and procedures applicable to the contest must be published as early as possible, preferably in the invitation.

IAC §7 The Aerobatic Box

No changes.

IAC §8 Boundary judges

This text replaces the IAC Rule book

Boundary judges are not used.

IAC §9 The starting line

This paragraph stands with the following change.

9.3 Starting line procedure

The starting line procedures will be part of the briefing.

IAC §10 Public Address System

This paragraph stands unchanged.

IAC §11 The judging line

This paragraph stands with the following change.

11.4 Number of judges

3-5 Scoring Judges. If no international judges are available, the contest may be conducted using a minimum of 3 national judges.
If there are 5 or more judges, the fair play system must be used.

IAC §12 Weather

This paragraph stands unchanged.

IAC §13 Penalties

This paragraph stands with the following change.

For Advanced and Unlimited cathegory the FAI CIVA penalties will apply.

IAC §14 Box Procedures

This paragraph stands with the following change.

14.3 Safety Checks
This text replaces the entire §14.3

For Power Primary, Sportsman and Intermediate, the following is allowed: Half roll, half roll back, and a pull-pull-pull humpty
In Advanced and Unlimited power, the FAI Sporting Code Section 6 - part 1 applies.

In Advanced and Unlimited glider safety maneuvers are not applicable. The competitor may not perform any aerobatic maneuvers between tow release and the start of the sequence.

Addition to 14.4.2
For gliders the wing dips shall be minimum 30 degrees.

IAC §15 Interruptions
This paragraph stands unchanged.

IAC §16 Temporary Competitor Incapacitation
This paragraph stands unchanged.

IAC §17 Mechanical Defects
This paragraph stands with the following change.

No change in Primary, Sportsman and Intermediate.
In Advanced and Unlimited power FAI Sporting Code Section 6 - part 1 applies
In Advanced and Unlimited glider FAI Sporting Code Section 6 - part 2 applies

IAC §18 Reflight after Abort
This paragraph stands unchanged.

IAC §19 Non-Competition Flying
This paragraph stands unchanged.

IAC §20 Scheduling
This paragraph stands with the following changes.

The order of flight shall be determined by the drawing of lots at the opening briefing for all flights.
To facilitate a smoother contest, categories can be mixed, however, experience says that mixing power and glider is not always optimal.

Competition Flight Programs at Nordic Championships

The rules apply for Primary, Sportsman and Intermediate. Sportsman and Primary will fly 3 flights. In Primary the two best performances are included in the competition and the lowest

performance is deleted. Intermediate will fly 3 flights, IAC Compulsory, IAC Free and IAC Unknown.

In Advanced and Unlimited, these programs are flown:

Power
Programme 1: Free Known (as per CIVA rules)
Programme 2: Free (as per IAC rules)
Programme 3: Free Unknown (as per CIVA's “Programme 2”, figures selected by the pilots)
Programme 4: Free Unknown (as per CIVA's “Programme 3”, figures selected by the pilots)

In Advanced power, specified paragraphs of FAI Sporting Code Section 6 - part 1 Edition 2020
In Advanced glider, specified paragraphs of FAI Sporting Code Section 6 - part 2 Edition 2020
The advanced and Unlimited categories use the FAI CIVA Free known programs and those differences between IAC and FAI Rules that are important for the pilot such as the wing wag.
Special note: No tail slides are allowed in the Advanced category in NAC
Special note: The Free (as per IAC) flown in Programme 2 is selected to make it easier to recruit pilots from Intermediate, and for safety reasons (the program is designed by the pilot to suit the pilot/aircraft)

Glider
Programme 1: Free Known (as per CIVA rules)
Programme 2: Free (as per IAC rules)
Programme 3: Free Unknown (as per CIVA, figures selected by the pilots)
Programme 4: Unknown (as per CIVA, designed by the organizer)

20.2.2 New wording; The order of Flight will be determined by drawing of lots at the opening briefing.

IAC §21 Program Forms

This paragraph is valid for both Power and Glider Aircraft.
This paragraph stands with the following addition.

All programs submitted to the contest organization must be in openaero.net format. For practical reasons, the allowed figures are given by openaero.net.

IAC §22 The known program

This paragraph is valid for both Power and Glider Aircraft.
This paragraph stands unchanged.

IAC §23 The Free program

This paragraph is valid for both Power and Glider Aircraft.
This paragraph stands with the following addition.

The Free Program must be submitted to the contest organization in openaero.net format and comply with the validation rules in OpenAero.

IAC §23 B The Free Known program

This paragraph is valid for both Power and Glider Aircraft.
This is a new paragraph addressing the FAI CIVA Free Known programs in Advanced and Unlimited categories.

The Free known programs shall be designed according to.
In Advanced and Unlimited power FAI Sporting Code Section 6 - part 1 Edition 2020.
In Advanced and Unlimited glider FAI Sporting Code Section 6 - part 2 Edition 2020.
Each program must comply with the validation rules in OpenAero for that program/category.

IAC §24 The Unknown program

This paragraph is valid for both Power and Glider Aircraft.
This paragraph stands with the following addition.

The contest organization will produce the Unknown sequences. Each program must comply with the validation rules in OpenAero for that program/category.

Distribution
Minimum time between flights is 2 hours. Sequences must be published 4 hours prior to the program is scheduled to be flown

IAC §24 B The Free Unknown program

This paragraph is valid for both Power and Glider Aircraft.
The Free known programs shall be designed according to.

In Advanced and Unlimited power, specified paragraphs of FAI Sporting Code Section 6 - part 1 Edition 2020.
In Advanced and Unlimited glider, specified paragraphs of FAI Sporting Code Section 6 - part 2 Edition 2020.

Selection of figures for the Free Unknown programs

Ideally, all Advanced and Unlimited pilots will participate in this exercise. Any safety concern with a particular figure must be raised here, and then the pilots can agree to accept the suggested figure or request another figure to be submitted. If the countries cannot agree, the chief judge has to decide.

Submission, publication and selection of Free Unknowns

See suggested schedule in Appendix 1.
After submission of the free unknown sequences the contest director randomly selects a sequence (in each Programme) as the default sequence. Any pilot that has not selected a sequence before the published deadline will be assigned the default sequence.

IAC §25 Program Briefings

This paragraph stands with the following addition.

Amendments for NAC
Drawing of lots (starting order)
The following items should also be clarified:
Allowed safety maneuvers in the various categories
Difference in wing tipping IAC/CIVA
Difference in procedures for cloud in the box IAC/CIVA
Difference in procedures with technical difficulties IAC/CIVA
What constitutes a training violation?

IAC §26 Grading Judge Concepts
This paragraph stands except for judging of the Primary cathegory.

IAC §27 Basic Criteria for judging Aerobatic Figures
This paragraph stands unchanged.

IAC §28 Family-Specific Grading Criteria
This paragraph stands unchanged.

IAC §29 Presentation
This paragraph stands unchanged.

IAC §30 Chief Judge Responsibilities
This paragraph stands unchanged.

IAC §31 Contest Jury
This paragraph stands with the following change.

31.2.1 The Contest Jury will consist of a chairman and at least two additional members. The Jury should be selected by the organizer and preferably have members from all participating countries.

Replace "IAC Official Protest Form" with "Official Protest Form" as published by the organizer.
Replace "$50" with "EUR 50 or equivalent local currency".

IAC §32 Scoring
This paragraph stands with the following change.

32.3.1 The Acro software shall be used at NAC and NGAC.

IAC §33 Trophies and Recognition
This paragraph stands with the following changes.

33.2.1 The competition is valid as a championship in each category where a minimum of 3 Nordic pilots from at least 2 Nordic countries have flown at least one flight each.

Pilots from other countries may participate but will not become champions and will not receive any medals or prices.

Trophies

For Power Aircraft.
The Tor Andre Fusdahl Cup to the winner in the highest category in the NAC

For Glider Aircraft:
The Pekka Havbrandt Trophy is awarded to the winner in the highest class. The trophy may be kept for one year and a small copy may be retained by the winner.

Delete all § from 33.4 -33.8.5.

IAC §34 Gliders

This paragraph stands with the following changes.

34.15 Tow and release
The glider is towed into the box at 1250 m. The glider may release at any time. Turning into position is allowed but thermailing is not allowed. If the positioning is not accepted, the pilot may choose not to release and will then be towed into the box a second time. This second time the pilot must release and commence the sequence, or land and file a protest.

34.16 Mixing Gliders with Powered aircraft
Experience shows that there are no benefits in mixing Glider and Power aircraft. It may be better to fly one cathegory Glider and then a cathegory of Power. The decision in this matter lies with the organizer.

IAC §35 The Four Minute Freestyle

N/A at NAC or NGAC.

IAC §36 Understanding Aresti Notation

This paragraph stands unchanged.

IAC §37 Allowable Figures for Unknown Sequences

This paragraph stands with the following changes.
Each program must comply with the validation rules in OpenAero for that program/category.

Appendices

1. Nordic Basic (Primary) rules for Power and Glider aircraft replacing IAC Primary rules.
2. A list of not approved maneuvers in Power Advanced.
3. Self-Briefing form

Appendix 1 Nordic Power and Glider Primary Category

1: Description

The category is based on IAC rules, but with some of the figures adjusted to provide a fair contest for aircraft without inverted fuel systems. The adjusted figures and judging criteria are described below. The sequence is designed to accommodate lower performance aircraft.

2: Adjusted figures

In the sequence diagram, the adjusted figures are preceded by a letter "**P**". The principal adjustments are as follows:
In Cuban 8s and ¾ loop, the roll, may commence once the 45-degree attitude is reached, with no downgrade for the missing line. If a line is drawn, there will be no downgrade for not centering the roll on the line. In a diagonal humpty bump, the rolls do not need to be centered on the line. There will be no downgrade for the line missing between the roll and the loop. In rolls, the nose may pitch up, up to 15 degrees, before the roll starts, and pitch down up to 15 degrees after the roll ends, with no downgrade for breaking the roll line.

In addition, a wingover (a figure used for IAC glider sequences) may be used to give the sequence good flow and energy management.

3: Judging criteria

Normal IAC judging criteria are used, but adjusted to represent the Primary figures:

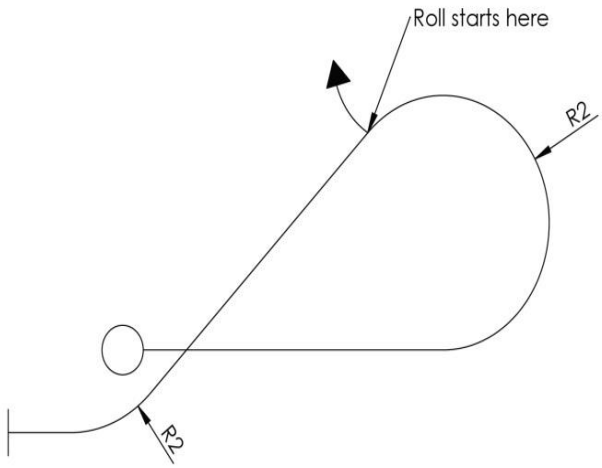
Family 7.3 PRIMARY Three Quarter Loops:

Sometimes referred to as "Goldfish," it is not required that the lengths of the 45-degree lines bear any strict relation to the diameter of the three-quarter loop. That is, the lengths of the two 45-degree lines may be different and the entry and exit altitudes need not correspond to the altitude limits of the loop.

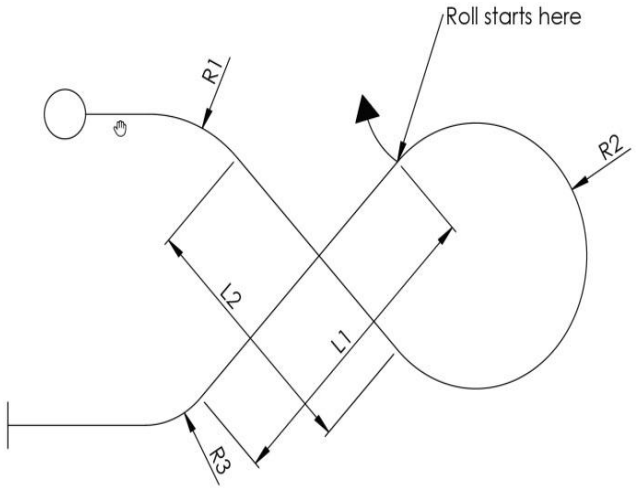
The half roll may commence once the 45-degree attitude is reached. If a line is drawn there will be no downgrade for not centering the roll on the line.

The half roll shall commence once the 45-degree attitude is reached. If a line is drawn or the roll starts before reaching the 45-degree attitude, the figure will be downgraded according to **IAC Official Contest Rules 8.4.2.d:**

When the looping portion of a figure is immediately preceded or followed by one or more rolls (i.e., rolls not centered on a straight line), there must be no visible line between the roll and loop elements. Drawing a line requires a downgrade of at least one (1) point depending on the length of the line drawn. This criterion is not meant to imply that one element (roll or loop) must start before the preceding element is completely finished. A brief hesitation between elements (similar to opposite rolls) must not be downgraded.



R1and R2 do not have to be equal



R1, R2 and R3 do not have to be equal
L1 and L2 do not have to be equal

The penalty for varying the rate of roll is one (1) point per variation. Any stoppage in the Primary roll that could result in it being considered a hesitation roll would result in a grade of HZ for the figure. The finish of the roll must be as crisp and precise as possible. Coming to a slow finish in fact represents a change in the rate of roll and must be penalized accordingly. The wings must stop precisely after the desired degree of rotation and not go past the stop point and then return. This is referred to as “bumping the point”. A deduction of 0.5 point to one (1) point is given depending on the severity of the “bump”. Deviation from the 15 degrees nose-up and nose-down attitudes are downgraded 1 point per 5 degrees deviation. Variation in the arc where the roll is performed is downgraded with 1 point, according to **IAC Official Contest Rules 8.4.2.b**. If a line is drawn before or after rolling, or the roll starts during pull-up or ends pull-out back to horizontal, the figure will be downgraded according to **IAC Official Contest Rules 8.4.2.d**:
When the looping portion of a figure is immediately preceded or followed by one or more rolls (i.e., rolls not centered on a straight line), there must be no visible line between the roll and loop elements. Drawing a line requires a downgrade of at least one (1) point depending on the length of the line drawn. This criterion is not meant to imply that one element (roll or loop) must start before the preceding element is completely finished. A brief hesitation between elements (similar to opposite rolls) must not be downgraded.

Family 0.0 Wingover

The wingover is judged according to IAC glider criteria:

The Wingover begins with a climbing coordinated turn, with the turn begun immediately after the climb is initiated. Climb and turn will be timed so that at the top of the climb, heading is 90 degrees off the original heading, the wings are perpendicular to the horizon, and the longitudinal axis of the aircraft is horizontal. Deductions for errors in heading and attitude at this point must be made according to the "one point per five degree" rule. The second half of the wingover is a continuation of the turn, now on a descending flight path, returning to horizontal flight on the reciprocal of the entry heading (Fig 8.5.1). The 180-degree change of heading must be flown at a constant rate of turn and the bank angle must be constantly and smoothly changed throughout the turn, stopping only briefly as the roll direction is reversed at the 90-degree point of turn. Each change in the rate of roll or turn is a deduction of no more than one (1) point. Any complete stoppage of the rate of roll or turn is also a deduction of no more than one (1) point.

Appendix 1: Explanatory notes and examples

The criteria may seem somewhat complex at first, but they are simply based upon existing IAC judging principles and should present no difficulty for judges and or pilots.

Primary half Cubans and ¾ loops use the existing criteria found in the IAC Contest Rules, but since the roll immediately follows the looping portion, criteria used for half loops, more commonly referred to as an Immelmann, apply. That means there must be no visible line between the looping portion and the roll, and the roll must not start during the looping portion. In that sense, the figures are downgraded exactly like an Immelmann. This replaces the requirement for the roll to be placed in the middle of the line.

Example:

In a ¾ loop (P 7.3.3.3 + 9.1.4.2, figure 2 in the 2019 Nordic Primary), a line is drawn before the roll. According to 8.4.2.d, 1 point is deducted.

In a half Cuban (P 8.5.6.1 + 9.1.4.2, figure 5 in the 2019 Nordic Primary), the roll is started 10 degrees before reaching the 45-degree attitude. 2 points are deducted according to the standard 1 point/5-degree rule.

In the Primary roll, the rotational element is judged according to existing criteria in the IAC rule book, i.e. constant roll rate and wings level start/stop. In the entry, we have a radius immediately followed by the roll, and in the exit, a radius immediately following the roll. Again, “think Immelmann”, same criteria apply. The arc where the roll is placed must have constant radius, this is downgraded like radius variations in looping portions in other figures.

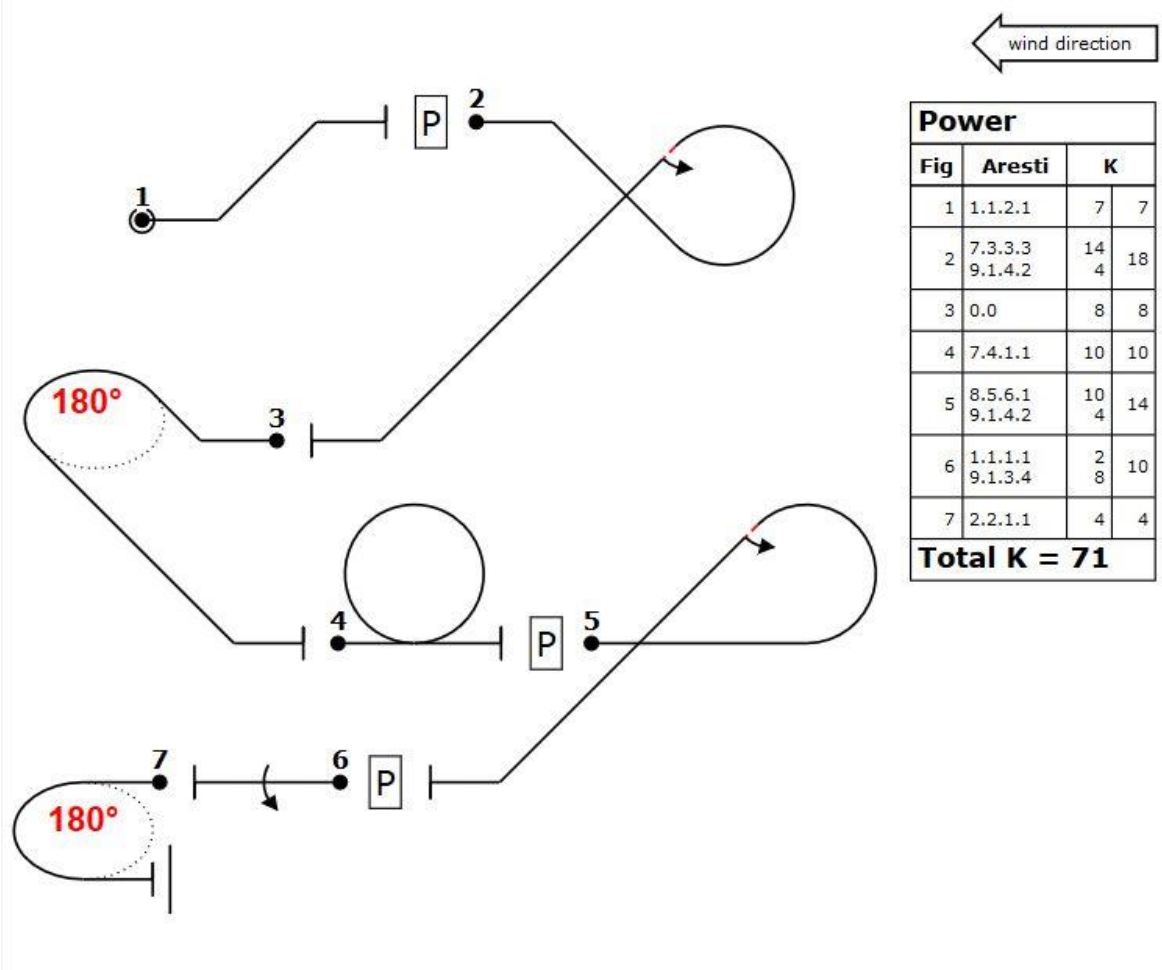
The figure must start and end with a horizontal line. There is no requirement for equal radius or equal altitude in entry and exit. This is to make the criteria practical and conforms to other figures where there is no such requirement, like Cuban eights and hammerheads. Since the radius only describes a 15 degrees arc, a huge difference in radius would be required to make a visible difference in entry and exit altitude as long as the roll is started and finished at the 15-degree point. Thus, an equal radius requirement would be purely academic.

Example:

In the Primary roll (P 1.1.1.1 + 9.1.3.4, figure 6 in the 2019 Nordic Primary), a 25-degree line is drawn after the roll stops. 1 point is deducted for drawing a line, and 2 points are deducted for the attitude error. No points are deducted for the altitude difference in start and finish horizontal lines.

In the Primary roll (P 1.1.1.1 + 9.1.3.4, figure 6 in the 2019 Nordic Primary), the roll is started 10 degrees before reaching the 15 degrees attitude. The resulting arc is uneven. 2 points are deducted for initiating the roll 10 degrees too early, according to the standard 1 point/5-degree rule. 1 point is deducted for the uneven arc.

2020 Nordic Primary Sequence Power



Power			
Fig	Aresti	K	
1	1.1.2.1	7	7
2	7.3.3.3 9.1.4.2	14 4	18
3	0.0	8	8
4	7.4.1.1	10	10
5	8.5.6.1 9.1.4.2	10 4	14
6	1.1.1.1 9.1.3.4	2 8	10
7	2.2.1.1	4	4
Total K = 71			

2020 Nordic Primary Sequence in openaero.net format

Copy this string to openaero.net:

d (-2,0) "P" ig```````2..... (2,0) .jw...+`` (-2,0) ``+o+`` (-2,0) "P" c```2...'' "P" 1 2j

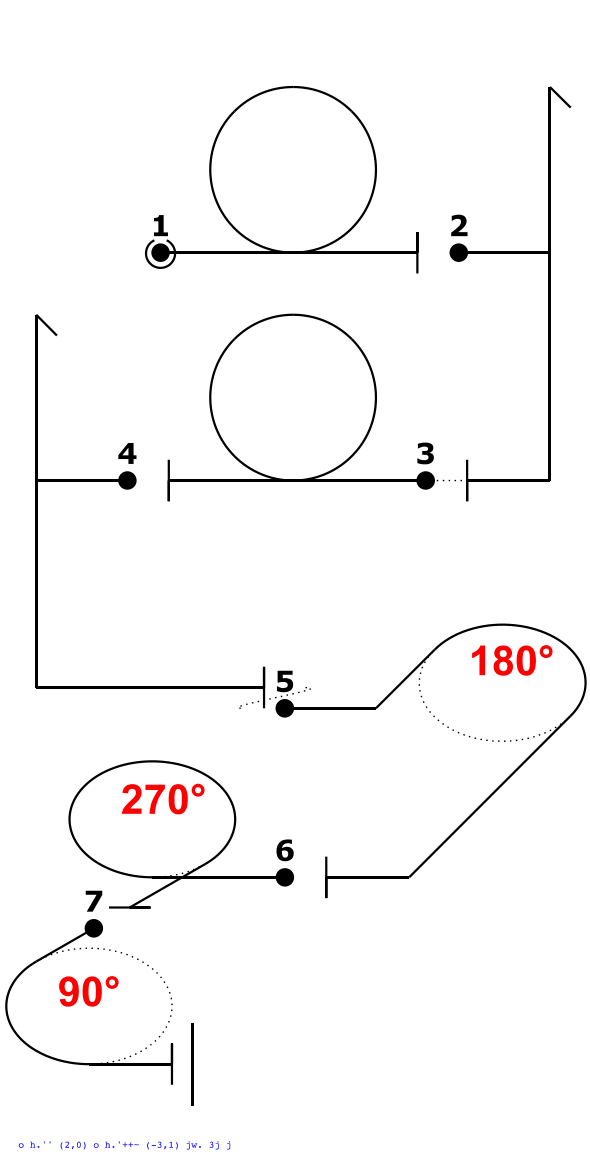
2020 Nordic Primary Sequence Glider

This can be flown with the Swedish AVA1 training.

o h.'' (2,0) o h.'++~ (-3,1) jw. 3j j

STOCKHOLM Glider Primary GLIDER PRIMARY 2020-02-09 12:01

	NORDIC	Form B
Pilot ID	IAC Glider Primary	Flight #



Glider			
Fig	**Aresti**	**K**	
1	7.4.1.1	10	10
2	5.2.1.1	17	17
3	7.4.1.1	10	10
4	5.2.1.1	17	17
5	0.0	8	8
6	2.3.1.1	5	5
7	2.1.1.1	3	3
Total K = 70			

o h.'' (2,0) o h.'++~ (-3,1) jw. 3j j

GLIDER PRIMARY Pilot A/C

Appendix 2 Not approved maneuvers in Power Advanced

No tail slides are allowed in the Advanced category.
No snap rolls are allowed in the intermediate unknown programs.

Appendix 3

SELF BRIEFING/ENTRY FORM

Pilot name	
Aero Club	
Aircraft type and registration	
Sporting license No.	No longer required
Billing adress	
Mobile phone number	
E-majl adress	
Pilot license expiration date	
Aircraft insurance expiration date	
Pilot license No.	
Medical certificate expiration date	
Date	
Signature	