AGENDA ITEM 14a

KNOWN ANALYSIS WORKING GROUP REPORTS

Proposed Known Programmes 2014

CIVA Known Analysis Working Groups were formed to provide Delegates with expert advice on the quality, safety, and flyability of Known sequences submitted to CIVA for consideration. The Working Groups are made up of experienced pilots who have proven themselves in competition and sometimes have gone on to successful coaching careers as well. They have all flown a wide variety of aircraft.

Deadline for submission of Known sequences was 1 August 2013. Seven countries responded with proposals. Immediately after the deadline closed, the sequences were all checked, re-drawn, and de-identified by Brian Howard (USA). The Known Proposals Agenda Package was then prepared, posted on the CIVA website, and sent to all of the analysts. They reported back by 1 October 2013. The analysts were asked to present their findings in table format and to rank each sequence as well as grade it from 0 to 10. A zero would be assigned to any sequences they regarded as unsafe or unsuitable for the category. My thanks to all of them for their contributions.

To help Delegates study the sequences and decide on which ones they will vote for, tables are provided at the end of this document with the sequence ratings tabulated therein. I encourage you to read through the comments and then review the table at the end for an easy-to-read summary. Please note that in the analyses, reports were sometimes provided on earlier versions of the Known proposals, i.e. Advanced F and Unlimited B and E. The second versions of these, which were altered with the permission of Delegates, appear as Fv2, Bv2, and Ev2 respectively in the analyses. In the Known sequence drawings, the "v2" is not used. Only the modified sequence is presented.

Mike Heuer
Chairman, CIVA Rules Sub-Committee

Alan Cassidy's Analysis

Unlimited Power

	Comments	Score	Rank
A	Good positioning, 2 cross-box opportunities, good average K, even spread. Includes all families, no high-negative G. Sufficiently challenging but not intimidating nor unsafe.	**8**	**1**
B	Good positioning, 2 cross-box opportunities, high K with wide spread. Includes all families, no hard negative G, but many complex rotations (since reduced).	**~~6~~7**	**2**
C	Poor positioning design requires long inverted flight between 1 and 2, then all downwind until after 5. Almost certain to be unflyable from 2 to 5 in 1000m box. Out downwind problem again after downwind 45 on 7 and multiple opposite rolls on 8. Includes all families.	**2**	**3**
D	Good average K but very wide spread. Only 1 cross box correction available. No Family 5 or 6. No high negative G, but strong risk of GLOC on 3/4 loop of figure 4 after inverted spin and negative flick. Figure 1 contains a potentially very high speed positive flick from an inverted descending line and presents high level of deterrent to new Unlimited pilots. Consecutive flick rolls on slow line of 7 will prove difficult to gain consensus from judges. Rejected. Dangers inherent in figures 1 and 4.	**-**	**NR**

E	High K with wide spread. Figure 1 is a big issue for me as it will encourage pilots to 'cheat' the flick with aileron and not rudder, because of the slide. Flick rolls must be driven throughout by rudder. This figure will deter many newer pilots from moving up. Positioning OK, with 2 cross box options. However, acceleration required between 8 and 9 will result in long downwind acceleration and outs on the last figure. Rejected. Figure 1 issues as listed.	-	**NR**

Unlimited	A	B	C	D	E
Cassidy	1	2	NR	NR	NR

Preference, best to worst: A then B; none of the others

Advanced Power

	Comments	**Score**	**Rank**
A	Moderate average K but wide spread. Risk of GLOC on figure 2 before flick after inverted flight on 1 and inverted spin. Again but a bit less severe on figure 3 first loop down. High speed flick on figure 5. 5, 6 and 9 all height losing and the 3/4 down and push on 9 is clearly too physical at that stage of the flight. Rejected. GLOC and low inverted finish.	-	**NR**
B	Moderate K, but no figure especially high K, so good spread. Good energy building in later half of sequence for lower powered aircraft. Two cross box options. No high negative G, can be flown in Pitts. Capable of good framing.	**9/10**	**1**

C	Low average K and very wide spread. Low exit speed from 3 and need for speed for starting figure 4 will lead to excessive downwind flight for lower powered aircraft. No energy building during 4, 5 and 6 followed by major height loss on 7 and 8. Rejected. Framing issues and height loss after figure 6. Very much favouring high performance aircraft.	**-**	**NR**
D	High average K but with very even spread. Downward flicks on 3 and 4, followed by diving 2 of 2 on 5 will lead to a lot of height loss for lower powered aircraft. Figure 5 likely out downwind in moderate wind due to downwind 45 lines on 2 and 3. Sequence strongly favouring higher powered aircraft. Satisfactory but probably 3rd choice due to favouring high power.	**6/10**	**3**
E	Reasonable average K but quite a wide spread. However, upward vertical 3/4 flick on 5 is outside Advanced repertoire and a strong deterrent to extended participation by less experienced pilots. Full roll down on 8 loses a lot of height near the end for low powered aircraft and proves nothing technical. Rejected. Vertical climbing flick roll and height loss at end for low power.	**-**	**NR**
F	High average K with a very wide spread. Fig 4 too simple. Very high K in Family 2 and rather too many similar fractions of flicks. Good energy building in second half for lower powered aircraft. Change to Fig 7 doesn't significantly change my opinion.	**7/10**	**2**
G	Fairly high average K but with a very narrow spread. Preponderance of Family 8 with nothing from Family 7. Risk of GLOC in long 3/4 loop to a positive flick after inverted line and inverted spin. Figure 6, following on from high speed opposite rolls, is rather too demanding for lower powered aircraft like a Pitts. Rejected. Risk of GLOC on figure 3.	**-**	**NR**

B	C	D	E	F	G
1	NR	3	NR	2	NR

Preference, best to worst: B, F then D; not A, C, E or G.

Yak 52/Intermediate Power

	Comments	Score	Rank
A	Moderate K with sensibly narrow spread. Interesting start with good potential positioning thereafter. Very suitable for Yak52 although relatively simple for Intermediate.	**8**	**1**
B	Highest average K with a very wide spread. A lot of K vested in the Family 2 figure. The vertical half roll up after the roller presents a lot of advantage to anyone using a high-power aircraft, so is not really fair in this type of contest.. Rejected. Too much favour to high powered aircraft at figure 6.	**-**	**NR**
C	Moderate K, a slightly wider spread than sequence A. Very high speed corner in figure 1 is minor concern. No energy building after spin and long down 45 lines on 6 and 7 may present height problems for some.	**5**	**2**

A	B	C
1	NR	2

Preference, best to worst: A, C; not B.

Gerard Bichet's Analysis

Advanced Power

	Comments	Score	Rank
A	Only 2 flick rolls. Safety : Figure #5 is dangerous for low performance aircraft (high speed flick roll) Significant height loss during sequence 4 - 5 - 6, which over advantages high performance aircraft. Sequence 4 - 5 - 6 a bit too long,even if drawn into the wind.	0	Not Ranked
B	Only 3 flick rolls. Technically not enough challenging; Safety : Figure 3 can perhaps lead to G-lock (long positive g succeeding immediately to negative g)	5/10	4
C	Only 1 flick roll. Technically not enough challenging. Sequence 3 - 4 - 5 too long for a down-wind branch. Safety :too significant height loss during sequence 7 - 8. If the pilot does not want to fly too low, this implies to fly figures #4 and 5 very high (which is uninteresting, as far as the unique flick-roll of the sequence wouldn't be correctly visible from judges). Not really dangerous, but the two parts of the sequence (before figure #6 and after) will be flown at very different heights.	1/10	5
D	5 flick rolls. Very challenging sequence as far as the K is rather high. Figure #2 can lead to significant loss of height and high recovery speed for lower performance aircraft. Not dangerous, but could probably establish an inequity among pilots, some of them being obliged to fly figure #1 rather high in order not to be too low during the end of the	6/10	3

	sequence. Sequence 5 - 6 a bit long, even if drawn into the wind. Repetition of 9.9.5.3 flick roll. No safety problem.		
E	4 flick rolls. Figure 5 is not relevant for the Advanced spirit. Switch to upward slow roll and downward flick roll ? But this could cause a repetition (9.9.5.3) Positioning a bit difficult. Figures #3, 4 and 5 don't allow enough Y axis correction in order to compensate the effect of figured 7. No safety problem.	0	Not ranked
Fv2	4 flick rolls. Well-balanced sequence. Challenging structure as far as positioning is concerned. Sequence 1 - 2 could be difficult for lower performance aircrafts, and establish a slight inequity among pilots. No safety problem.	7/10	2
G	4 flick rolls. Well-balanced sequence. Challenging sequence, rich and interesting, as far as individual figures as well as positioning are concerned. No safety problem.	9/10	1

Mikhail Mamistov's Analysis

Unlimited Power

	Comments	Score	Rank
A	Good enough sequence but: - Not a good cross box wind correction fig. 6 – 7. It will be a problem if a pilot finds himself close to a side boundary of the box before fig. 6; - Not a good place at the end of the sequence for fig,9 which normally is performed with altitude loss.	6/10	3
B	Good sequence in sense of difficulty, rolls variety and positioning. No problem with altitude for any unlimited airplane.	9/10	1
C	Big problem with positioning: - Very long pass at slow speed is needed after fig.1; - High possibility of outs on fig. 4 and 5; - Two 45 degree lines in the same direction on fig. 6 and 7 – possibility of an out on fig. 7. Only one positive snap roll in the sequence.	2/10	5
D	Good enough sequence but: - Fig.8 rather suits for Intermediate/Yak-52 sequence; - Not a good cross box wind correction fig. 5 – 6. It will be a problem if a pilot finds himself close to a side boundary of the box before fig. 5.	7/10	2

E	Good enough sequence but: - Too difficult a combination of rolls before a tailslide; - Fig.3 is too simple for Unlimited.	5/10	4

Advanced Power

	Comments	Score	Rank
A	Safety issue! There is a possibility of high speed snap on fig. 5.	0	Not ranked
B	Safety issue! There is a possibility of a greyout/blackout on fig.3 due to intensive positive g-load after negative one.	0	Not ranked
C	There is only one snap roll.	4/10	5
D	Good enough sequence. A repetition of ¾ snap roll on downward vertical line (Fig. 2 and 4)	7/10	3
E	Good sequence.	9/10	1
F	Good enough sequence.	8/10	2
G	Normal sequence.	6/10	4

Yak 52/Intermediate Power

	Comments	Score	Rank
A	Normal sequence.	7/10	1
B	- Undesirable to Yak-52 outside exit on fig. 6. - Not enough speed for fig.6 after fig.5.	0	Not ranked
C	Outside half loop of fig.6 may be too difficult for Yak-52.	4/10	2

Matthieu Roulet's and Coco Bessiere's Analysis

Note: Sequences are evaluated under two aspects:

1. Safety (height issues, G-Lock risk, figure velocities, physiological overstress in repeated training, required skills exceeding level standard, …). A sequence considered unsafe will be scored 0 and will not be ranked.

2. Fairness & Interest (equivalent flyability by various aircraft types, sensitivity to wind conditions, variety, difficulty,…).

Unlimited Power

	Comments	Score	Rank
A	Safety: OK. Fairness & Interest: OK, except introduction of potential unfairness elements among pilots flying in different wind conditions, with: - Looping part in fig.4 not in the best direction with reference to official wind; - Fig.9 is not in a correct direction with reference to official wind. Wind conditions will therefore have a significant impact on the feasibility of complying with the required geometrical shape, which introduces an element of potential unfairness.	7/10	4
B	Safety: 5-6-7 combination requires careful height management, potential issue with height after the first 45-deg line of fig.7. Fairness & Interest: OK, except introduction of potential unfairness elements with: - Flicks in fig.1, 5, and second 45-deg down line of fig.7 are not in the best direction with	4/10	5

	reference to official wind => might give impression of varying slopes in case of strong wind; - Looping part in fig.3 not in the best direction with reference to official wind.		
B v2	Safety: OK. Fairness & Interest: OK, except introduction of potential unfairness elements with: - Flicks in fig.1, 5, and second 45-deg down line of fig.7 are not in the best direction with reference to official wind => might give impression of varying slopes in case of strong wind; - Looping part in fig.3 not in the best direction with reference to official wind.	7/10	2
C	Safety: OK – however the sequence requires careful height management. Fairness & Interest: Sequence design very sensitive to wind conditions, with fig. 3 + 4 showing two verticals downwind in a row, on which no wind correction can be managed on top (tail slide + stall turn) => In case of strong wind this makes fig. 3 – 4 – 5 combination difficult to manage in the box; on the other hand a slight actual opposite wind will make difficult to manage combination of fig. 5 – 6 – 7 in the box => Unfair on positioning among pilots flying in different wind conditions. In addition, total K too low, sequence lacking interest, with e.g. only one positive flick. Further, in case of strong wind there is a potential "uninteresting" long line between fig. 1 and 2. Lastly, flicks in fig. 1 and 7 are not in the best direction with reference to official wind, thereby introducing a further unfairness element.	3/10	7
D	Safety: OK Fairness & Interest: Nothing wrong to report on this sequence (sorry ;-). Classical (too classical ?) construction, adequate difficulty level, well balanced, positioning equally manageable whatever the wind conditions, flicks on 45-deg lines in the best direction with reference to official wind, …	8/10	1

E	Safety: Potential height issue at the end of fig.4, requires careful height management. Fairness & Interest: Challenging but OK (and rather high total K). Potential bad surprises on tail slide of fig.1 after the flick. Introduction of potential unfairness element among pilots flying in different wind conditions, with fig.3 loop, and fig.4 flick, not in the best direction with reference to official wind.	4/10	6
E v2	Safety: OK, modification of fig.3 vs sequence E allows easier height management through fig.4. Fairness & Interest: Challenging but OK (and rather high total K). Potential bad surprises on tail slide of fig.1 after the flick. Minor introduction of potential unfairness element among pilots flying in different wind conditions, with fig.4 flick not in the best direction with reference to official wind.	7/10	2

Advanced Power

	Comments	**Score**	**Rank**
A	Safety: Fig.5 is considered potentially hazardous depending on aircraft / pilot. Fig. 9 exit is unnecessarily inverted, resulting in potential height hazard; moreover, high negative G loading on the push to exit at the end of this sequence, repeated over and over during the training season, is considered unnecessarily physiologically demanding. Fairness & Interest: Combination of fig. 1 – 2 – 3 Introduces an element of potential unfairness among pilots flying in different wind conditions: In case of slight actual opposite wind, keeping fig.2 in the box requires fig.1 to be less ideally placed and with a shorter (i.e. possibly less spectacular) 45-deg line. In addition this would require a longer, "uninteresting" line between fig. 2 and 3. Finally this would also make more difficult to keep fig. 6 in the box.	0	Not ranked

B	Safety: OK Fairness & Interest: Good sequence, challenging enough (adequate difficulty level), well balanced, positioning manageable whatever the wind conditions (although fig. 2 – 3 – 4 combination a bit more difficult in case of actual slight opposite wind), flick on 45-deg line in the best direction with reference to official wind, …	8/10	1
C	Safety: Severe height hazard on fig.8. Fairness & Interest: Not discussed.	0	Not ranked
D	Safety: Fig.2, with 45-deg down line after flick on vertical down line, is considered a bit extreme for Advanced (and may in case of low ceiling present some height hazard for some pilots). Fairness & Interest: Introduction of potential unfairness elements among pilots flying in different wind conditions, with: - Combination of fig. 4 – 5 – 6 extremely difficult to keep in the box in case of actual slight opposite wind; - Flick in fig.3 not in the best direction with reference to official wind (minor); - Looping part in fig.9 not in the best direction with reference to official wind.	3/10	6
E	Safety: Vertical flick in fig.5 exceeds Advanced level standard. Fairness & Interest: Minor introduction of potential unfairness element among pilots flying in different wind conditions, with fig.4 flick not in the best direction with reference to official wind.	4/10	5
F	Safety: OK. Fairness & Interest: OK. Introduction of potential unfairness element among pilots flying in different wind conditions, with flicks in fig.3 and 7 not in the best direction with reference to official wind.	7/10	3

F v2	Safety: OK. Fairness & Interest: OK. Introduction of potential unfairness element among pilots flying in different wind conditions, with flicks in fig.3 and 7 not in the best direction with reference to official wind.	7/10	3
G	Safety: OK. Fairness & Interest: Good sequence, challenging enough (adequate difficulty level), well balanced, positioning manageable whatever the wind conditions, flick on 45-deg line in the best direction with reference to official wind, …	8/10	1

Martin Vecko's Analysis

Advanced Power

	comments	score	rank
A	- Only 2 flick rolls - Cross-box correction early and by rolling turns only - Entry speed for flick roll in fig. 5 could be high for some planes - Negative level-off in last fig. could be low (and dangerous)	5/10	6
B	- Only 2 flick rolls - Else quite a complex sequence	6/10	4
C	- Only 1 flick roll - In strong wind horizontal downwind line in fig. 3-4-5 could be long (out of box)	4/10	7
D	- 5 flick rolls, 2 of them same - God composition of of sequence but with no spin and rolling turn - Good cross-box correction	7/10	2
E	- Flick roll on vertical line up not used in advanced - Good complexity and good composition (easy to stay in box) - Cross-box correction by rolling turn only	7/10	3
F	- Complex sequence - 3 out of 4 flick rolls same ½ rotation - Good cross-box correction	8/10	1
G	- High energy entry to rolling turn (fig. 8) - Up-wind horizontal lines (fig. 1-2, 3-4, 5-6) could be lengthy in strong wind	6/10	5

Yak 52/Intermediate Power

	Comments	Score	Rank
A			2
B	- Most complex		1
C	- Probably more energy (height) demanding		3

Patrick Paris' Analysis

Unlimited Power

	Comments	Score	Rank
A	Fig 1,2 : Hard to place in the box, what to put center? Possible Hard G's at 2. Give advantage to high power in fig 9	5	3
B	Need of power for Fig 1 way up. Would prefer with only half roll way up or 2*4 and with only one roll instead of 2 at fig 7 way down. This will put the overall K a bit lower too. 2 cross box comb: good Ranked 2 but could be One and score 9 if those little changes applied.	7	2
C	2, 3, 4 and 5 downwind too hard to box it. Hard push in fig 5 and 6 then pull up in 7 quite tough		NR
D	One cross box comb ok. Need power in 7 to perform the two flicks	8	1
E	Need lot of power in Fig 1. Hard to pull up in 2. Then too much neg G's to finish with a pull down rather low altitude in fig 9. Hard to pull up in 8 after those neg G's too. Possibly Not Safe!		NR

Advanced Power

	Comments	Score	Rank
A	Hard G's at 2 and 3 especially after long line between 2 and 3. Unsafe at 4 and 5 comb especially with half roll before flick pos. Hard pull Down at 8. Possibly Not Safe!		NR
B	Hard to push and pull in fig 3. Hard G's at 4.	3	4
C	Hard G's at fig 2 and 3 because of downwind need to pull a lot since fig 4 and 5 downwind too. Late push down at rather high speed. Loose height at 8 way down. Possibly not safe		NR
D	Hard pull down at 7 not very high. (but not a lot of neg G's before).	4	3
E	Late cross box comb. Half flick pos missing.	6	1
F	A bit hard to perform 2*4 in fig 7, I would prefer max half roll. Good cross box comb.	5	2
G	Hard G's at 2 then upside down and then hard G's too at 3 .Good cross box combs. Could be unsafe especially at beginning of training season.		NR

Notes:

- Unlimited Programme B, I would prefer the little changes like in the comments
- Advanced Programme F, I would prefer the little change like in the comments

The changes Patrick Paris suggested were subsequently agreed by Delegates who submitted the sequences and those changed sequences were included in the Agenda document.

Jeff Boerboon's Analysis

Unlimited Power

Sequence	Comments	Score	Rank
	I have flown through all of the following sequences in an Extra 330SC and my comments are based on those flights. I found that safety was not the main issue with most of the sequences as they were for the most part safe. The largest issue that I came across was the lack of regard for continuity and box position. The wind estimates stated were taken from ForeFlight and XM satellite.	Safety Versatility Originality Sequence-Continuity Difficulty	1 is best.
A	Figure 4, 6, and 9 are very similar to the 2013 known sequence. Figure 4 P Loop has the same 4 point roll that we have this year on a P Loop and figure 6 and 7 have only slight variation. I found the half roll and full flick combination on figure 3 to be interesting but the second half was too much like the 2013 known. I also felt the total K was is too low.	6/10	4
B	There is a dead space in this sequence between figure 4 and 5. I flew this sequence with a zero wind and also with a 6m/s headwind. With the headwind there is a long break to get to the push up for figure 5. The combination of 5, 6, and 7 works well with the headwind but figure 8 will be out of the box downwind. With no wind figure 7 is likely to be out of the box upwind. Changing the roll combination on figure 7 makes it better but still a rush to keep it in the box. I do like the difficulty of this sequence.	8/10	2

C	I flew this sequence with 3m/s headwind. Starting with the down line after the spin there are 6 vertical lines before there is a turn upwind. Even with minimal wind I was 300 meters out of the box downwind. Then when tuned back into the wind there are two 45 degree lines and figure 7 also went out of the box. After all that figure 8 went out downwind. There are other problems with this sequence but it is not being ranked so that is all for now.		Not Ranked
D	This sequence starts off with 209K in the first four figures and ends with 146K in the last four figures. It does not have a good consistent flow through all 9 figures. With the exception of the two negative snap rolls the last five figures are very basic in comparison to the first half. It was interesting to fly until figure five.	6/10	3
E	I first flew this sequence with the double roll at the bottom of the loop in figure 3 and it really slowed down the pace of the sequence and did not flow with the rest of the program. With the change in figure three the sequence has a very good flow from start to finish and has a good variety of figures and roll combinations. I have flown this sequence with a variety of wind conditions and there was no issues keeping it in the box with good presentation. I like the difficulty in this sequence as well. It represents the unlimited category appropriately.	9/10	1

Advanced Power

	Comments	Score	Rank
A	The sequence has too many issues with going out of the box. Figure 2 goes out upwind then 4 goes out downwind and with two 45 lines back into the wind figure 6 will be out. There is good continuity but not too interesting. I do not like the inverted finish after a 3/4 down, this could be a safety issue		Not Ranked
B	Figure 3 and 4 are interesting but the rest of the sequence is not a good representation of an advanced sequence. With figure 2,3 and 4 together with little headwind figure four will be out upwind. I think the K is a little low and do not like the use of the 8 point roll in figure 9.	5/10	5
C	There are many problems with this sequence. 3,4, and 5 going downwind will not work. Figure 7 and 8 will loose too much altitude. Figure 9 will not be in the box. There is only 1 flick roll which is not representative of an advanced sequence.		Not Ranked

D	2,3,4, and 5 is not well planned to stay in the performance zone. With downwind 45's and downwind cross box. Then figure 5 and 6 has two long 45 into the wind which will lead to figure 6 going out upwind. I like the number of flicks and the difficulty is appropriate for advanced.	7/10	2
E	This sequence fly's very nice. It flows well from beginning to end and has no issues with going out of the performance zone. I think that difficulty could have been slightly higher on a couple of the figures but I do like the 3/4 flick on the up line in figure 4.	9/10	1
F	This program did not fly nearly as well as E. I like the difficulty but the continuity is not there. The altitude is changes from low to high to low and then to high is very disruptive. I think that it is not the best presentation to place a half loop on the y axis (figure 5).	6/10	4

G	This sequence has nice difficulty but it is all too rushed. The flow of the sequence is inconsistent throughout. The box presentation is better than program F but it has issues with a possible out on figure 5 with any appreciable wind. I don't think that figure 5 and 6 are in the best interest in safety.	6/10	3

John Morrissey's Analysis

Unlimited Known Programme

In Rank Order:

E1 Safe. Keeps pilot busy. Medium complexity. Good presentation potential. Fits box. I prefer E1 to E2. Score: 7/10. Rank 1.

B Safe. Medium complexity. Fits box. Easy to present except for long line required between 3 & 4 in high wind. Score: 6/10. Rank 2.

D Safe. Low complexity. Fits box. Low K on 8. Score: 5/10. Rank 3.

A Safe. Low complexity. Fits box. Easy to present. Score: 5/10. Rank 3 (tie).

C Safe. Difficult to fit box in maximum X axis CIVA wind component. Low complexity. Presentation potential limited. Rank: 4/10. Score: 4.

E2 Not rated. See E1.

Advanced Known Programme

In Rank Order:

B Safe. Fits box. Good presentation potential. Medium complexity. New figure. Good maneuver variety. Score: 7/10. Rank 1.

C Safe. Fits box. Medium complexity. Reasonable presentation potential.
Score: 6/10. Rank 2.

G Safe. Fits box. Presentation potential reasonable. Low complexity. Score: 5/10. Rank 3.

F Safe. Medium complexity. Difficult to present in high X axis wind. Score: 4/10. Rank 4 (tie).

E Safe. Medium complexity. Late cross box corrector (#7) may present some difficulties in Y axis presentation. Score: 4/10. Rank 4 (tie).

D Safe. Low complexity. Some difficulty in presentation in high X axis winds. Score: 3/10. Rank 5.

A Will fit box. Low complexity. Inverted push to level after ¾ roll down in last figure at bottom of box has potential for problem. Note: This push after ¾ roll down is prohibited in CIVA Sporting Code in Advanced Appendix 3: 9.18.1.1 (Advanced) (b) pg 103. Score: 2/10. Rank 6.

Advanced Sequence Rankings

Evaluator	A	B	C	D	E	F	Fv2	G
Cassidy (GBR)	NR	1	NR	3	NR	--	2	NR
Bichet (FRA)	NR	4	5	3	NR	--	2	1
Mamistov (RUS)	NR	NR	5	3	1	--	2	4
Roulet/Bessiere (FRA)	NR	1	NR	6	5	3	3	1
Morrissey (USA)	6	1	2	5	4 (tie)	--	4 (tie)	3
Vecko (CZE)	6	4	7	2	3	--	1	5
Paris (FRA)	NR	4	NR	3	1	--	2	NR
Boerboon (USA)	NR	5	NR	2	1	--	4	3

Advanced sequences receiving most 1st place rankings were "B" and "E" (three each).

Unlimited Sequence Ratings

Evaluator	A	B	Bv2	C	D	E	Ev2
Cassidy (GBR)	1	--	2	3	NR	--	NR
Mamistov (RUS)	3	--	1	5	2	--	4
Roulet/Bessiere (FRA)	4	5	2	7	1	6	2
Morrissey (USA)	3	--	2	4	3	1	NR
Paris (FRA)	3	2	1	NR	1	--	NR
Boerboon (USA)	4	--	2	NR	3	--	1

Unlimited sequence receiving most 1st rankings were "Bv2" and "D" (two each). Bv2 received four 2nd place rankings.

Yak 52/Intermediate Power

Evaluator	A	B	C
Cassidy (GBR)	1	NR	2
Mamistov (RUS)	1	NR	2
Vecko (CZE)	2	1	3

Yak-52/Intermediate sequence "A" received the most 1st place rankings.