

IAC Rules Proposals for 2021

Compiled by Doug Sowder, IAC 14590 , Rules Chair

Sept. 21, 2020
Rev. Oct. 12, 2020

We received 25 rules proposals for the 2021 IAC Rule Book. Several proposed changes are not really “new rules”, but rather clarifications after spending a year with the new, “re-factored” 2020 Rule Book. DJ Molny’s proposals fall into this category. When you look at these, determine whether, in your opinion, it’s a new rule or a clarification.

In some cases, I have condensed rules proposals to make them easily readable, but in all cases, the real “meat” of the proposal has been maintained. In my opinion, all of the proposals are well thought out and deserve our members’ consideration.

There are a few notes marked “RC Note:” RC stands for Rules Chair; I inserted these notes where I thought they might be helpful.

Because DJ arranged and formatted these first 17 proposals well, I have simply labelled them RP 2021-1 thru RP 2021-17, and placed the other new proposals after these.

Please review these proposals and send your comments to me at ruleschair@iac.org by October 31, 2021. You may surmise by the revision date above that I’ve been correcting a couple of my own errors. **Please help me (!)** by getting those votes and comments to me by October 31, so that I can get e-mails out to the Board in time for the Nov. 14 Board Meeting. A simple e-mail with RP number, Yes or No, and a short comment is fine. I’ll be passing these along to the Rules Committee with a summary.

Thank you,

Doug Sowder

Rule Change Proposals for 2021

Submitted by DJ Molny, IAC 25097
djmolny@gmail.com • 303-619-4814



ITEM #1		RP 2021-1
Synopsis	Fire extinguisher responsibilities	
Affected Rule(s)	9.2.1	
New Text	<i>The Starter shall ensure that a fire extinguisher is available at the starting line during contest operations.</i>	
Rationale	The current text omits three of the "four W's": who, where, and when.	

ITEM #2		RP 2021-2
Synopsis	Pre-flight safety	
Affected Rule(s)	9.3.3	
New Text	<i>The Starter will brief the competitor as to the official wind direction and ask the competitor to verify that they have adequate fuel and the necessary radio frequencies.</i>	
Rationale	Fuel is obviously a major safety consideration. Pilots sometimes launch without having the radio frequencies handy, especially on the first (Known) flight, which can result in confusion and increased risk. Note the wording: " <i>ask the pilot to verify</i> "; this should only take a few seconds.	

ITEM #3		RP 2021-3
Synopsis	Assistant responsibilities	
Affected Rule(s)	11.8.3	
New Text	<i>Assistants must have the ability to fluently read Aresti drawings.</i>	
Rationale	Aresti numbers are not a frequent concern on the judges line, and the Jury is responsible for resolving any issues that do arise. Following the judge's instructions (wording in the current rule) probably goes without saying.	

ITEM #4		RP 2021-4
Synopsis	Clarifying Optional Breaks	
Affected Rule(s)	12.6.2(b)	
New Text	<i>Each pilot may take one Explicit Interruption for any reason between figures without penalty.</i>	
Rationale	The rules do not indicate whether an implicit interruption should be treated as a free break, nor whether a competitor is allowed to interrupt in the middle of a figure. In addition, some judges have questioned pilots' motives for taking a break, e.g. " <i>the pilot took a break because they were behind the judges, so it should be penalized</i> ".	

ITEM #5		RP 2021-5
Synopsis	Consistent penalties for Free Programs	
Affected Rule(s)	31.4.2(h)	
New Text	<i>If the Presentation K-Factor is absent or otherwise incorrect, the Presentation K-Factor shall be corrected on Form A and a Failure to Prepare Penalty shall be applied.</i>	
Rationale	31.4.2(d)(ii) assesses a Failure to Prepare Penalty if the total K-factor is incorrect, while 31.4.2(h) zeros the Presentation score if the Presentation K-factor is incorrect. These penalties should be consistent and zeroing the Presentation score seems unduly harsh.	

ITEM #6		RP 2021-6
Synopsis	Safety check of Unknown sequences	
Affected Rule(s)	24.2.2	
New Text	<i>They shall check these forms for legality and safety prior to the start of the contest and notify the IAC of any issues found.</i>	
Rationale	<p>It is easier to spot problems outside the pressure of the contest environment, and the earlier the better.</p> <p>Note: This proposal is independent of Rule 31.4.1, which authorizes the Jury to alter Unknowns if necessary.</p>	

ITEM #7		RP 2021-7
Synopsis	Viewing Unknown sequences	
Affected Rule(s)	24.2.3 (new)	
New Text	<i>The Contest Director or their designated representative shall not view the Unknown sequence for any category in which they may compete.</i>	
Rationale	Fairness. This codifies existing common practice.	

ITEM #8	RP 2021-8
Synopsis	Distribution of Unknowns
Affected Rule(s)	24.3.1
New Text	<i>The Contest Director may make the Unknown Sequence Forms available to the competitors at any time after the first Program Briefing, but not less than twelve (12) hours prior to the flight.</i>
Rationale	<p>Fairness and safety.</p> <p>CDs often distribute the Unknowns the night before the flight. Between meals, hygiene, sleep, travel to and from the airport, prepping the plane, etc., that does not leave much time to study the sequence for safety and strategy. Competitors who volunteer for off-hour tasks – entering scores, buying provisions, or building the next day's clipboards – are even more heavily impacted.</p> <p>Note 1: I believe the 12-hour rule was intended to avoid "wasting" sequences if time pressure or bad weather forced cancellation of the Unknown after the forms were distributed. I sent this proposal to Michael Lents, Chair of the Sequence Design Committee, and received his endorsement.</p> <p>Note 2: In prior years I submitted proposals to return to an 18-hour minimum without success, hence this new proposal. But if the Board is amenable to 18 hours that would be even better.</p>

ITEM #9		RP 2021-9
Synopsis	Allow a brief pause in competition turns between banking and heading change	
Affected Rule(s)	28.5.2, 28.5.4	
New Text	<p>28.5.2: <i>After the roll to a bank angle of at least 60° is complete, the heading change must begin. A perceptible pause is permitted between the end of the roll and the start of the heading change. If the heading changes before the bank angle is established, deduct one (1) point for every five (5) degrees for any bank angle less than 60°.</i></p> <p>28.5.4: <i>When the aircraft reaches the exit heading, the heading change must stop on the correct box axis while maintaining the chosen bank angle, followed by a roll back to wings level using a rate of roll equal to the entry roll. A brief perceptible pause is permitted between the end of the heading change and the start of the roll. If the entry and exit roll rates do not match, deduct one (1) point.</i></p> <p>NOTE: If item #16 ("Pauses within figures") is adopted, then the capitalized term Pause should be used in the above text.</p>	
Rationale	This allows pilots to clearly demonstrate that they have not flown a "blended entry", and is consistent with the rules for Immelmans, Split-S's, and rolling turns.	

ITEM #10		RP 2021-10
Synopsis	Use of logos	
Affected Rule(s)	3.1.2	
New Text	<i>The IAC logo may not be used without sanctioning.</i>	
Rationale	I doubt that IAC sanction confers the right to use CIVA or FAI logos. And I have no idea what it means to use a logo "indirectly".	

ITEM #11		RP 2021-11
Synopsis	Named Insureds	
Affected Rule(s)	3.4.1	
New Text	<i>An aerobatic contest must be covered by a liability policy issued by EAA's Risk Management Department.</i>	
Rationale	Contest organizers can only obtain insurance from EAA and – aside from adding the airport owner – have no influence over the named insureds.	

ITEM #12	RP 2021-12
Synopsis	Implicit interruption for distorting figures
Affected Rule(s)	15.2.1(c)
New Text	<i>Deliberately climbing or diving between figures or flying a horizontal portion of a figure such that the obvious intent is to gain or lose altitude. Ascending or descending lines permitted under 34.20.2.1 shall not be penalized.</i>
Rationale	<p>There are several problems with the current wording "<i>gain or lose altitude or energy</i>":</p> <ul style="list-style-type: none"> • "Energy" is not defined but is probably intended to mean airspeed. • We deliberately adjust airspeed all the time, for example extending a downline or closing the throttle before a spin. Obviously, those adjustments should not be penalized. • We deliberately gain and lose altitude all the time as well, for example holding a 45 upline for as long as possible to gain altitude prior to a spin. • Gliders are explicitly permitted to fly constant ascending or descending lines between figures, specifically for the purpose of adjusting their airspeed. <p>We should only penalize major altitude changes during what is supposed to be horizontal flight.</p>

ITEM #13		RP 2021-13
Synopsis	Non-matching line lengths and radii	
Affected Rule(s)	28.12.2, 28.12.3	
New Text	<p>28.12.2: <i>All lines (Interior and any final line) must match the length of the first line. If they are not of equal length, deduct according to Variations in Line Length.</i></p> <p>28.12.3: <i>All radii must be the same size as the first radius.</i></p>	
Rationale	<p>Judges are instructed to count deductions as a figure progresses. Therefore the first line length and the first radius must be the standards against which the remaining lines and radii are measured.</p> <p>As a counterexample, imagine a square loop that starts with a large radius followed by three smaller radii that are identical to one another. Is that one downgrade or three? The current rules provide no guidance.</p> <p>In addition, the Judges School training materials state that the length of the first line sets the standard.</p> <p>Note: Square loops, diamond loops, and octagon loops are the only figures I can think of with more than two radii and/or lines that must match. But if there are others, their scoring criteria should be updated as well.</p>	

ITEM #14		RP 2021-14
Synopsis	Glider release	
Affected Rule(s)	34.15.1	
New Text	<p><i>The towplane will tow the competitor to the altitude appropriate for that flight (no more than 5,000 feet or less than 2,500 feet). The towplane will then position the glider perpendicular to the axis on which the sequence is designed to start. If the glider pilot does not release on the first pass, the towplane will initiate a turn away from the box and, staying as close as possible to the box, re-entry on the base leg as before. The glider pilot must release before the end of the second pass when clearance to release had been given, unless given permission by the Chief Judge to remain on tow.</i></p>	
Rationale	The current rule assumes an upwind entry for all sequences.	

ITEM #15		RP 2021-15
Synopsis	Role of the Safety Pilot	
Affected Rule(s)	3.5.4 (new)	
New Text	<i>Except as necessary for safety, a Safety Pilot shall not communicate or manipulate the aircraft controls between the time the competitor is cleared into the box and the sequence is complete.</i>	
Rationale	The current rules permit Safety Pilots but do not define their role.	

ITEM #16		RP 2021-16
Synopsis	Pauses within figures	
Affected Rule(s)	Quick Reference, 26.10 (new), 27.8.2, 27.11.1, 27.12.3, 28.6.6, 28.15.3, 28.21.1, 28.21.4, 28.21.5, 28.24.10, 36.5.2(b), 36.6.1	

New Text	<p>Quick Reference for Looping Lines with Connected Rolls (pg. i): <i>Deduct at least 1 point for a Protracted Pause between the Looping Line and the roll</i></p> <p>26.10 Pauses 26.10.1 <i>A Pause is brief but perceptible straight line that is optional in some figures and required in others. A Prolonged Pause occurs when the Grading Judge determines that a Pause is substantially longer than necessary.</i></p> <p>27.8.2: <i>The rolls must have a Pause between them.</i></p> <p>27.11.1: <i>When a Looping Line is immediately preceded or followed by one or more rolls (i.e., rolls not centered on a straight line), there may be a Pause between the roll and Looping Line.</i></p> <p>27.11.2: <i>If there is a Prolonged Pause between the roll and Looping Line, deduct at least one (1) point.</i></p> <p>27.12.3: <i>Capitalize the word "pause" in the Clarification paragraph.</i></p> <p>28.6.6: <i>If the rate of roll stops (aside from a Pause when changing roll directions), deduct one (1) point.</i></p> <p>28.15.3: <i>If a roll is performed between the half-loops, it must be performed on a horizontal line. There may a Pause before and after the roll. If a line is added at either of these points, deduct at least one (1) point.</i></p> <p>28.21.1: <i>These rolls are judged on the same criteria as Slow Rolls, except the aircraft must Pause during the roll a pre-stated number of times, e.g., 2, 4 or 8.</i></p> <p>28.21.4: <i>The duration of the Pauses must match. For each Pause duration observed to be different from the first, deduct one (1) point.</i></p> <p>28.21.5: <i>Each Pause must be clearly recognizable to the judge. If a Pause is not seen, mark the figure HZ.</i></p> <p>28.24.10: <i>If a roll follows a spin, there must be a Pause between the spin and the roll.</i></p> <p>35.6.2(b): <i>Hesitation rolls are drawn as slow rolls with Pauses listed as AxB, where A is the number of Pauses and B is the number of Pauses that would occur in 360 degrees of roll, except that only the "B" value is printed when the Pauses add up to 360 degrees.</i></p> <p>36.6.1: <i>Capitalize the word "pause".</i></p>
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Rationale	Many types of figures are flown with a brief but perceptible pause: Immelmans, hesitation rolls, rolling turns that reverse direction, a roll following a spin, etc. We should use consistent language to describe the pause.
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ITEM #17		RP 2021-17
Synopsis	Slow roll description	
Affected Rule(s)	28.20.1	
New Text	<i>Slow Rolls must be flown at a constant roll rate. If there is any variance in the roll rate, deduct one (1) point per variation.</i>	
Rationale	The phrase " <i>without pause</i> " in the current rule is redundant. If a roll is flown at a constant roll rate there can be no pauses.	

Rules Proposal 2021-18

Subject: Not exceed aircraft manufacturers' documented safe meteorological conditions.

Proposer: Paul Thomson

From: Paul Thomson <cyav8r@yahoo.com>

To: "ruleschair@iac.org" <ruleschair@iac.org>

Date: Tue, 30 Jun 2020 17:46:37 -0700

Subject: 2 rule change proposals

===== Forwarded message =====

Based on some contest events last year, I'd suggest these changes may be an improvement to increase the safety and fairness of our contests. If you have any questions with my suggestions, please let me know.

Thanks

Paul

Proposed rule changes:

12.7.1 A competitor may decide not to fly, or to abort, due to deteriorating meteorological conditions, **or meteorological conditions that exceed those documented by the manufacture as safe.**

Rationale: While pilots are able to accept any risks associated with operations outside the manufacture's guidance if they so choose, we should not be pushing competitors to become test pilots during a competition. Penalizing a pilot for following their manufacture's documentation will lead to poor decisions and potential accidents if competitors are worried not flying will negatively impact their score.

Rules Proposal 2021-19

Subject: Use of in-aircraft video to support protest of high or low altitude penalty

Proposer: Paul Thomson

31.5.xx **Protests of high or low altitude limit infringement penalties may utilize video recorded onboard the aircraft during the specific flight in question as evidence to support their claim.**

Rationale: The altitude of a competitor is judged by the grading judges as only their opinion, but to the pilot in the cockpit it is a matter of fact as displayed on their altimeter. If a pilot chooses to utilize an onboard video camera(s) to capture clear

evidence of their altitudes during a sequence, that evidence should be available to the jury in reviewing altitude infringement protests. This keeps with the spirit of the existing practice used at some contests (IAC Nationals) to leverage ground based video to review matters of fact as outlined in 30.9.4c.

Rules Proposal 2021-21

Subject: **2021 Category Uncreep Rule Proposals**

Proposer: Tom Myers

Rationale

We have reached the point at many regional contests where there is barely enough participation for viability. This rule proposal turns back the clock to when there was more than double the participation in the sport. It returns category sequence requirements to those that allowed more affordable aircraft to be competitive at the middle and upper levels of competition.

Rulebook Changes

RP 2021-22

Section 23 The Free Program

Section 23.2.1 Free Sequences are limited to the maximum number of figures and maximum total figure K-factor as shown below.

(c) Advanced maximum # of figures

Increase from 12 to 15 [NOTE: Reduces per figure K-factor from 25 to 20 (80%).]

(d) Unlimited maximum # of figures

Increase from 9 to 11 [NOTE: Reduces per figure K-factor from 47 to 38 (80%).]

RP 2021-23

Section 24 The Unknown Program

Section 24.6.1 Number of Figures and total figure K-factor are restricted as follows:

(a) Intermediate maximum total figure K-factor

Reduce from 175 to 152. [NOTE: 152 is 80% of the 190 Intermediate free total K-Factor.]

(b) Advanced maximum total figure K-factor

Reduce from 275 to 240. [NOTE: 240 is 80% of the 300 Advanced free total K-Factor.]

(c) Unlimited maximum total figure K-factor

Reduce from 400 to 336. [NOTE: 336 is 80% of the 420 Unlimited free total K-Factor.]

Section 24.6.2 Rolls are restricted as follows:

(a) Advanced

(i) Reduce from "A minimum of 2 and a maximum of 4 snap rolls." to "A minimum of 2 and a maximum of 3 snap rolls."

(c) Unlimited

(i) Reduce from "Maximum of 6 snap rolls, only 4 of which may be from the same subFamily (9.9, 9.10)." to "Maximum of 4 snap rolls, only 3 of which may be from the same family (9.9 or 9.10)."

RP 2021-24

Create Section 24.6.3 Pushes are restricted as follows:

(a) Intermediate

(i) Figures requiring outside pushes beyond -1g are not allowed.

RP Note: I spoke with Tom about the last sentence; we weren't able to come up with better wording, considering that -1g does not permit any way to exit an inverted line other than a roll.

Rules Proposal 2021-25

Subject: Density Altitude rather than Airport Elevation for Optional Break Criteria

Proposer: Susan Bell

Affected Rule:

12.6.1 — If the ceiling requirements are not met, **or if the airport field elevation is charted at or above 3,500 feet MSL**, the Contest Jury may authorize Programs to be flown with an optional break.

New Rule Text:

12.6.1 — If the ceiling requirements are not met, **or if the calculated density altitude is at or above 5,000 feet MSL**, the Contest Jury may authorize Programs to be flown with an optional break.

Rationale:

The intent of the optional break rule (I believe) is to promote safety in adverse conditions. Airport elevation in and of itself is not always indicative of an adverse condition — it is the calculated density altitude (DA) based on the current temperature and pressure at that elevation which affects aircraft performance.

Especially in the lower categories, there is a range of pilot abilities and experience. Those who practice at a lower altitude near sea level can be surprised at the lack of aircraft performance when temperatures soar inland at airports with elevation as low as 1500.’ The author has witnessed several Primary and Sportsman flights where competitors fell, spun or snapped out of figures when density altitude resulted in less aircraft performance than they were accustomed.

Regarding the current rule criteria, there are traditionally only four contests scheduled at airports with >3500’ elevations. Yet, three additional contests are held at airports with <3500’ elevation but scheduled during months with DA above 6500’ (calculated using average monthly temperatures and standard pressure). Two of these contests have average DA above 7000’, which is greater than the DA of one of the contests benefitting from the current optional break criteria. Three more contests have average calculated DA’s above 5000’, with two contests coming in just below at 4900.’ (See contest data below.)

Implementation of the rule by the Contest Jury would be the same as dictated by the ceiling requirements, as both can change throughout the day.

RP Note: The following list of DA’s at 2019 contests is provided for reference; it will not be included in the Rule.

IAC 2019 Contest Airport Elevations and DA Calculation

Location	Id	Elev	Month	AvgMoTemp	ISAStdTemp	DA
"USAF Academy, CO"	KAFF	6576	May/June	75	35.98	11258
"Ft. Morgan, CO"	KFMM	4595	July	90	42.92	10245
"Cutbank, MT"	KCTB	3858	Aug	78	45.50	7758
"Lamar, CO"	KLAA	3706	Oct	72	46.03	6823
"Calgary, OT"	CYRM	3244	end Aug	70	47.65	5926
"Apple Valley, CA"	KAPV	3062	May	82	48.28	7108

"Jean, NV"	0L7	2835	October	80	49.08	6546
"Lancaster, CA"	KWJF	2351	Labor Day	96	50.77	7778
"Killam, AB"	CEK6	2181	early June	63	51.37	3577
"Marana, AZ"	KAVQ	2032	Nov	77	51.89	5045
"Seward, NE"	KSWT	1506	June	85	53.73	5259
"Spencer, IA"	KSPW	1339	early Aug	82	54.31	4661
"Salina, KS"	KSLN	1288	late Sept	76	54.49	3869
"Breckenridge, TX"	KBKD	1284	May	85	54.51	4943
"Ephrata, WA"	KEPH	1276	June & Aug*	88	54.53	5292
"Llano, TX"	KAQO	1102	Oct	81	55.14	4205
"Collingwood, ON"	CNY3	730	Aug	77	56.45	3197
"Rome, GA"	KRMG	644	Oct	73	56.75	2594
"Coalinga, CA"	C80	625	May/June	90	56.81	4608
"Bay City, MI"	3CM	585	July	82	56.95	3591
"Springfield, VT"	KVSF	578	July	84	56.98	3821
"Salem, IL"	KSLO	573	May	76	56.99	2854
"Borrego Spring, CA"	L08	522	Apr & Oct*	91	57.17	4581
"Keene, NH"	KEEN	488	Oct	61	57.29	933
"Farmville, VA"	KFVX	416	Apr	71	57.54	2031
"Warrenton, VA"	KHWY	336	early Sep	79	57.82	2877
"Corvallis, OR"	KCVO	250	July	85	58.13	3475
"Dunnellon, FL"	X35	65	late Mar	77	58.77	2252
"Sebring, FL"	KSEF	62	May* & Nov	87	58.78	3448
"Edna, TX"	26R	61	late Mar	76	58.79	2127
"Lumberton, NJ"	N14	49	Aug	85	58.83	3190
"Cape May, NJ"	KWWD	22	June	79	58.92	2431

AvMoTemp from NOAA data

ISA Std Temp calculation: $((\text{Elev}/1000)*-3.5)+59$

Density Altitude at 29.92 calculation: $\text{Elev}+(120*(\text{AvgMoTemp} - \text{ISAStdTemp}))$