International Aerobatic Club
Rules Committee

Recommendations

To The

IAC Board of Directors

For Rule Changes

2015

Submitted by:
Brian K. Howard
Chairman, IAC Rules Committee
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INTRODUCTION

Fourteen new or modified rule proposals were received by the IAC Rules Committee prior to the deadline of 1 September 2014. Those proposals were evaluated by the Committee and of those fourteen proposals, by unamimous vote, six (6) were approved and recommended for adoption by the IAC Board of Directors for inclusion in the 2015 edition of the *IAC Official Contest Rules* book.

The following pages contain the full text of the approved proposals including the rationale for the proposal as provided by the original submitter. The actual changed or added text is shown in red. Ancillary comments have been added to some of the recommended proposals where the Committee thought it would help the Board to understand the reason for adopting that particular proposal.

For the sake of transparency, the eight (8) proposals not approved by the Committee are listed in an abbreviated form as an appendix to this report along with a capsule summary of the reasons for rejection.

The Rules Committee is confident that adoption of the approved proposals will improve the quality, safety, and efficiency of IAC competition and urges to Board to approve all six rule change proposals without change.

PROPOSAL 2015-01

Affected Rule(s): 7.2.1
Subject: Wing Dips

Background

There continues to be confusion as to the allowable actions following the wing dips to signal the start or restart of a sequence. The rules have been modified to make clear that wing dips can be performed in other than level flight and either inside or outside the box. The remaining confusion, however, is in exactly what the pilot is allowed to do following the wing dips and prior to the first actionable figure. The most common maneuver following the wing dips is either a climb to dissipate energy or a dive to gain energy. Depending on what the first figure to be flown is, these maneuvers can easily be mistaken by the judges for a gradable figure.

Proposed Change

7.2.1
Once wings-level horizontal flight is established following the wing dips which signal the start or restart of a sequence, the next gradable figure begins at the moment the aircraft departs from that wings-level, horizontal flight path. This does not imply that the pilot may not abort the sequence start as allowed in 4.16.1(a). A figure is complete at the moment the aircraft returns to a wings-level, horizontal flight path (upright or inverted). Once horizontal flight path is established at the end of a figure, the beginning of the next figure is considered to have occurred. The only exceptions to this are in the grading of the exit lines in *Aresti Aerobatic Catalogue* Families 7.4.3.x thru 7.4.6.x (Square and Octagon Loops).

Summary

This change removes all ambiguity from the judging line as to when grading should begin following a wing dip signal to start or restart a sequence. The pilot is free to maneuver as necessary prior to the wing dip signal including turns and climbs/dives to adjust energy prior to the first figure, but once the wing dip signal has been completed and the aircraft returned to wings-level, horizontal flight, the next departure from that flight condition will be considered a gradable figure. Note that the change also does not preclude the pilot from aborting the start/restart following wing dips if not satisfied with the starting parameters.

PROPOSAL 2015-03

Affected Rule(s): 2.1
Subject: Medical Certification for Military Pilots

Background

Rule 2.1 currently states that all pilots not competing in a LSA must possess a current FAA medical certificate. Pilots in the military use a different form in lieu of the FAA Medical Certificate. In addition, CFR 61.23 authorizes such use with the following text:

(9) When a military pilot of the U.S. Armed Forces can show evidence of an up-to-date medical examination authorizing pilot flight status issued by the U.S. Armed Forces and--

(i) The flight does not require higher than a third-class medical certificate; and

(ii) The flight conducted is a domestic flight operation within U.S. airspace.

Proposed Change

2.1
A pilot competing in a Light Sport Aircraft (LSA), regardless of pilot certificate held, must also possess either a valid U.S. driver's license, or a current FAA medical certificate. All other certified pilots of powered aircraft must possess a current FAA medical certificate, ~~or~~ a current medical certificate appropriate to the pilot's license from another country, or the appropriate form from the U.S. Armed Forces. These licenses and certificates must be shown to contest officials on request.

Summary

U.S. military pilots are already allowed to compete at IAC contests without a civilian pilot's license. This change simply acknowledges the difference in paperwork between the civilian and military pilot communities without having any effect on operation or safety of the contests.

PROPOSAL 2015-05

Affected Rule(s): 2.6.3(a)
Subject: Judge Currency

Background

As contest participation shrinks, the limited number of available judges and volunteers has forced more and more contests to be run with two judging lines. For those judges that compete and are routinely counted upon to serve as Chief Judges, compiling enough grading judge credits in a contest season has become very difficult. This rule change would allow more judges to maintain currency and serve in a contest role critical to safety.

Proposed Change

2.6.3
(a) In order to attain currency and be added to the IAC Approved List of Judges for the current contest year, each Judge must pass the current year IAC Revalidation and Currency (R&C) Exam with a minimum score of 80% and have been a grading or Chief Judge for thirty (30) flights within the previous calendar year in IAC sanctioned contests. Equally acceptable will be judging twenty-five (25) flights provided at least 5 flights were Advanced or Unlimited Free Programs.

Summary

A good Chief Judge observes most every figure of every flight and is mentally assessing the quality of those figures. While not recording the marks for each figure as a grading judge does, the process is identical. By allowing judges who participate in IAC competition primarily as Chief Judges to be subject to the same currency rules as other judges, it will provide more flexibility in manning the judging lines at all contests.

PROPOSAL 2015-07

Affected Rule(s): 5.7 & Appendix 1
Subject: Primary Category

Background

Over the IAC's history we have seen a steady decline in the number of contestants as the performance and cost of our aircraft have dramatically increased. There were 51 Sportsman and 135 total competitors at the IAC Championships at Fond du Lac, WI, in 1975. The average Aerobatic Performance Index (API) calculated from the horsepower/weight ratio, maximum speed, and roll rate of the 1975 competitors was 27. In 2005 (the most recent year for which I have statistics), the average API was 62. Some representative API values are tabulated in Table 1.

Table 1. Some representative API values.

Citabria	3
Clipped Wing Cub	4
150 hp Decathlon	8
180 hp Great Lakes	9
Super Decathlon	10
Skybolt	23
Pitts S-2A	36
Extra 200	41
Pitts S-1S	48
Pitts S-2B	51
Extra 300	76
Edge 540	94

The future of our sport is highly dependent on attracting and retaining our entry level competitors. During the early years of IAC, Sportsman pilots were flying low-performance aircraft, many without inverted fuel or oil systems. Examples of that era include 115 hp Citabrias, 65 and 85 hp clipped-wing Cubs and Taylorcrafts, Luscombes, Ryan PT-22, stock Stearmans, the Great Lakes and Waco biplanes, the Bücker Jungmann,, Monocoupe, Chipmunk, CAP 10, Stitts Playboy, EAA Acrosport, PJ-260, Starduster, Skybolt, Pitts Special, and the Acroduster.

In recent years, we have seen most of these early classics sitting on the sidelines and replaced in the box by high performance monoplanes. Most of our current Sportsman competitors are flying such aircraft. The up-ramping of the energy requirements for the Sportsman sequence, aircraft performance, and cost has gradually excluded a great many aerobatic-capable aircraft and pilots.

The first-level (now called "Primary") category has the potential of attracting entry level competitors and providing a home for the classic, as well as RV, and other modern aircraft capable of light aerobatics. However, it's hard to justify the cost of attending a regional contest to fly three aerobatic figures. Many standard aerobatic flight training programs are

now of the 10-hour variety concluding with an aerobatic sequence approximately 75% the difficulty of the present Sportsman Known. For these pilots, the Primary category, at its present level of difficulty, is a step backwards. Moreover, for those few that are attracted to IAC and fly Primary with a low API aircraft, the quantum jump in difficulty excludes many from advancing to Sportsman. The transition from Primary to Sportsman currently has a more than 300% increase in K-value. The other rungs of our competition ladder are more uniformly spaced with an average increase of about 140% in the K-values of their respective Knowns. Indeed, past studies have revealed that few of the Primary pilots in a given year continue in subsequent years or advance to higher levels. For the experienced pilot flying a low API aircraft, the current Primary sequence is dumbed down to a humiliating level and certainly not serving its intended function.

There is little we can do to affect the health our nation's economy or the costs of fuel, hanger, insurance, and maintenance, all of which have and will take a significant toll on general aviation and our sport. We can, however, improve our entry-level competition environment. In recent years there has not been a good home for the low-performance aircraft (API < 20). The low-performance aircraft has insufficient energy to fly recent Sportsman sequences, the Primary sequence is too easy for the experienced pilot and too short to be cost-effective given the costs of attending a contest.

Our challenge is then to construct a first-level sequence that will encourage and retain new participants and provide a home for the low-performance aircraft with a sequence that measures airmanship rather than API values. In order to address the issues discussed above, the sequence should target a K-value of perhaps 80 or 100. The most fundamental consideration for a well-designed sequence that meets our criteria is energy flow. The low-API aircraft requires careful energy management with the right hand, not the left. The pilot must expend a finite amount of altitude rather than more horsepower on kinetic energy. In my view, fair competition can exist between aircraft of widely different API providing the sequence gives the low-performance aircraft access to its potential energy. If a given figure has a critical minimum energy requirement, there must be an opportunity to convert altitude into speed in the preceding figure. A sequence at this level will provide sufficient challenge to attract and retain new participants, provide a home for the low-performance aircraft, and a much more reasonable platform to advance to Sportsman.

Should this proposal be adopted, a new name for this category which more accurately reflects its purpose would be desirable. However, that's an editorial change which can be addressed later.

Footnote:
Aerobatic competition is recognized as an extreme sport and, yes, we are all very much aware of how botched Immelmanns, hammerheads, etc. can evolve into various spin modes and how a miss handled spin has a lethal potential, particularly in some types of aircraft. All the more reason to make sure that aerobatic competition pilots at all levels are familiar with proper spin recovery techniques.

Proposed Change

New ‘first-level’ sequence to replace Primary:

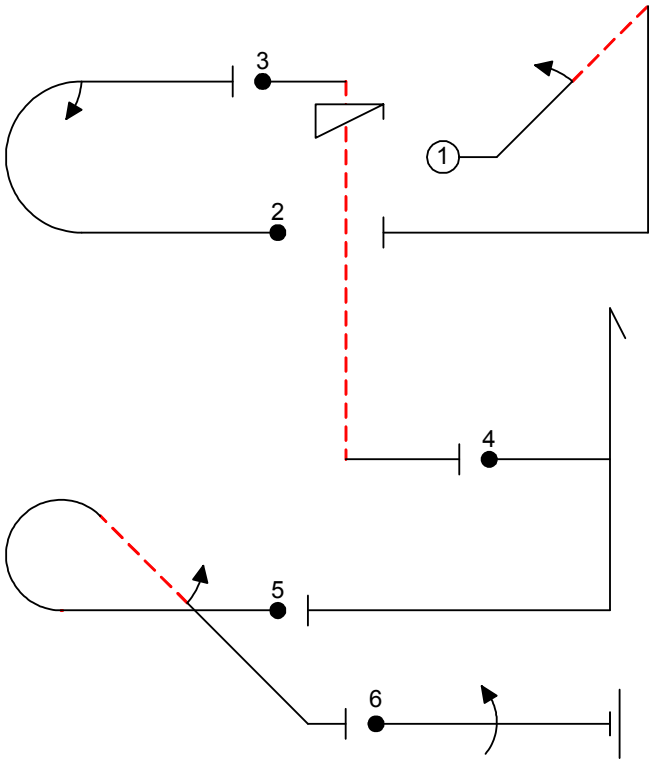

Fig 1	1.2.3.1 9.1.2.2	12 6	18
Fig 2	7.2.2.1 9.1.3.2	6 4	10
Fig 3	1.1.6.3 9.11.1.4	10 5	15
Fig 4	5.2.1.1	17	17
Fig 5	8.5.6.1 9.1.4.2	10 4	14
Fig 6	1.1.1.1 9.1.3.4	2 8	10
Total K = 84			

Additional RC Comments

This could be a very important proposal to assist with retention and growth of IAC competition pilots. The small number of pilots now competing in Primary now does not even support the category's existence. Many contests do not host a Primary category at all or, if they do, have to cajole upper category pilots to compete in Primary “for a patch” so the single Primary contestant will have a contest. This proposal is not simply a new Primary sequence. It is really a complete paradigm shift for bringing and keeping new aerobatic pilots into the sport. The rationale provided is well-stated and convincing. Most new competition pilots start with Sportsman because Primary is too elementary. Beginning in Sportsman may in fact be a bit more complex than these pilots would like, but pilots would rather face the extra challenge of Sportsman than spend their contest money on an unchallenging Primary sequence. The Board is encouraged to try this new concept category and see if the participation grows. If participation doesn't grow, the traditional Primary sequence can be reinstated. If approved, a new category name which accurately reflects the purpose of the category is needed. Two suggestions to seed that process are: “Standard” and “Basic”.

PROPOSAL 2015-10

Affected Rule(s): 6.2
Subject: Limit number of figures for Sportsman Free

Proposed Change

Change Table 6.2.1, Sportsman, Maximum Number of Figures, from 15 to 12.

Edited by RC for simplicity from original proposed, Current Sportsman Known + 1"

Summary

This change would prevent watered down sequences with nothing but straight lines, turns, and the odd looping figure.

PROPOSAL 2015-12

Affected Rule(s): 2.3(t)
Subject: Gliders Flying In Power Categories

Background

Unlimited glider pilots have 3281 feet of vertical space allowed to fly their sequences. Pilots flying a power Intermediate sequence are allowed 2300 feet of vertical space to fly a sequence. An unlimited glider pilot will rarely/never be able to complete the power Intermediate sequence in only 2300 feet of altitude. Glider pilots may not be able to simply start higher than the top of the box and take their chances on getting called "out high" because they may have to exceed the contest waiver altitude limitations to do so. The only other alternative would be to take a break and attempt to use thermals to climb up high enough to finish the sequence. However, thermals of sufficient strength may not be available, so a retow is the only available alternative.

Proposed Change

Add new paragraph to the end of 2.3(t):

Gliders flying power Sportsman or Intermediate categories shall be permitted to take a break during a program and land. As soon as practicable, the glider will be towed to altitude and be released into the box by the Chief Judge to continue their program with the next unflown figure. A break penalty shall not be assessed. Other competitors in the category may be allowed to fly their sequences while the glider is being towed.

Additional RC Comments

Although seemingly a potential major slow-down for contest, in reality if a glider is competing in a power category, it is likely the only glider at the contest and therefore providing a break as described in this proposal would have little effect on the contest flow. The small amount of inconvenience can be considered a small price for bringing new competitors into the sport.

Appendix

The following 2015 Rule Proposals were rejected by unanimous vote by the IAC Rules Committee. The proposal number, subject, and an abbreviated summary of why the proposal was rejected are provided. The summaries are a compilation of pertinent comments taken from the proposal analyses of one or more RC members and are by no means inclusive of the full evaluations. This appendix is provided for information only and is not subject to Board action.

PROPOSAL 2015-02

Affected Rule(s): 8.4.2
Subject: Grading Loops and Part-Loops

NOT APPROVED:
Although developing a criteria to provide additional objectivity to the grading of looping lines (not unlike the criteria for grading straight lines) is a much needed change, the proposal leaves too many "what-ifs" dangling for the RC to feel comfortable approving it at this time.

PROPOSAL 2015-04

Affected Rule(s): 1.4
Subject: Contest Jury

NOT APPROVED:
Adds unnecessary verbiage to the rule book and places an additional and unnecessary administrative burden on the Contest Director. The purpose of the Contest Jury is to interpret IAC Official Contest Rules, while the contest Safety Director always has the authority to interject safety concerns in any contest operation, not just Jury proceedings.

PROPOSAL 2015-06

Affected Rule(s): 5.7 & Appendix 1
Subject: Primary Sequence

NOT APPROVED:
Superseded by 2015-07. Additionally, the sequence is badly designed with a (possible) low-speed downwind turn, a downwind spin, and a downwind loop.

PROPOSAL 2015-08

Affected Rule(s): 2.6.3(c)
Subject: Judge Currency

NOT APPROVED:
This program would eviscerate the Judge's School program, and deprive our judges of the interaction with trained Judge's School instructors. Further, five serious problems where identified within the structure of this proposal.

PROPOSAL 2015-09

Affected Rule(s): 2.1
Subject: Change Medical Requirement

NOT APPROVED:
The proposal may potentially place safety pilots in the unenviable position of assuming liability of taking an individual of questionable medical condition on a stressful aerobatic flight. It hard to defend a legal action for allowing pilots who may be, arguably "unfit to fly," to fly a stressful flight at a contest.

PROPOSAL 2015-11

Affected Rule(s): 6.14
Subject: Free Program Certification

NOT APPROVED:
There are both practical and philosophical reasons for prohibiting a judge from certifying his/her own Free. On the practical side, it is all too easy for the sequence originator to look at something dozens of times and not see an error which an outsider immediately sees potentially increasing the frequency of non-compliant "illegal" Free programs at IAC contests. On the philosophical side, the existing prohibition removes any possible appearance of conflict of interest. The communication and interactions between pilots and judges is very valuable. We'd lose a lot of that value, and quite a bit of the experience that judges receive, if pilots didn't have to reach out to another judge for certification of a Free. The requirement for another judge to check a Free program is in no way cumbersome. With virtually every Free now done on a computer, any judge's certification is only an e-mail away.

PROPOSAL 2015-13

Affected Rule(s): 2.6.1 & 2.6.2
Subject: Judge Qualifications

Some of the hardest decisions a Judge must make are regarding combinations of zeros, interruptions, inserted / deleted figures, etc. on the fly during a sequence. Becoming a good competition pilot does not necessarily equip one with the skills for judging. Not to mention that this proposal would further diminish the importance of the Judge's Schools. Can't learn judging skills just by watching planes fly.

PROPOSAL 2015-14

Affected Rule(s): 4.16, 4.16.1, 4.16.2
Subject: Signalling

NOT APPROVED:

The use of a radio for signaling has a certain appeal, but at the expense of added noise and confusion on the Judges Line. There would need to be standard radio phraseology developed for each of the various scenarios, procedures written for radio failure once in the box, and a myriad of other details addressed, all of which would greatly increase the complexity of the rule book. The wing dipping system is straight forward, relatively foolproof, and there is no reason to change just because we can.