Twelve General Judging Rules 12/29/07

There are twelve rules that, as a judge, you should be looking for all the time. They are:

- Wind Correction	*- Line Addition*	*- Corners*	*- Arc Centering*
- Line/Arc Alignment	*- Line Length*	*- Arc Radius*	*- Roll Execution*
- Line Omission	*- Line Centering*	*- Follow Arc*	*- Roll Hesitation*

Each of these is covered in turn below - but first some fundamentals.

IMAC Airspace:

We fly in a simple three axis (X, Y and Z...) air space. The X axis is 100 feet out from the pilot station and parallel to the flight line as defined by the CD. The Y axis (called "cross box") is perpendicular to it. Visualize both of these as defining a "ground plane" that the airplane flies over. Perpendicular to this ground plane is the Z axis which defines the vertical component of the airspace. Each line and/or arc that we fly is judged against these three imaginary lines. There are no other parameters defining our airspace. The 07 rules changes eliminated box limits and the 60 degree line.

IMAC Airspace Boundaries:

The only boundary to the airspace that is defined by the IMAC rules is the "deadline". This is the X axis as defined above - 100 feet out from the pilot stations and parallel to the flight line. This should be well marked. Beyond the deadline, there are no rules imposed limits. The pilot has the rest of the planet to fly in. The ASC (airspace control score) you give for each sequence is meant to control this. If the pilot flies far away making your judging difficult, give him a zero or a very low ASC score. If he flies close enough to facilitate judging, give him a high ASC score.

The deadline is an absolute inner limit. It is as close as a pilot is allowed to bring his plane toward himself. If in your judgment any maneuver at all penetrates the deadline, even partially, you must give that maneuver a zero.There may be other boundaries imposed by the CD for local reasons. If so, these should be published in advance of the contest and the CD must inform you, the judge, how these are to be measured and enforced and what the penalties are.

Judging Within the Airspace:

Judging Lines - Any straight line within a maneuver must be horizontal (parallel to the X/Y ground plane), vertical (parallel to the Z axis) or at a 45 degree angle to the X/Y ground plane. That's it! If the plane you are judging is flying a line that is not one of these then you should be deducting points per the rules described below.

Judging Arcs - The lines within maneuvers are joined by arcs (45 degree minimum up to 360 degrees as in a full loop). When flying such an arc the airplane must also be tracking parallel to the X or Y axis. If it is not, you should be deducting points per the rules described in the following.

Start and End of Judging:

Sequence start - The start of judging for the sequence occurs when the pilot pulls/pushes from the horizontal entry line for the first maneuver. Until then, no deductions are to be made, i.e., the entry line to the first maneuver is not judged.

Maneuver start - For maneuvers after the first in a sequence, judging begins for that maneuver as soon as the aircraft reaches a horizontal line after completion of the previous maneuver. Each maneuver must begin and end on a horizontal line.

Sequence end - The sequence is over when the pilot attains straight and level flight at the conclusion of the last maneuver in the sequence. This exit line is not judged.

The Twelve General Rules

Note that there is nothing in the IMAC F&JG that mentions "Twelve General Rules". The material here is just another, hopefully, simpler way to present the bulk of the material that is in the F&JG. The twelve rules are:

1. - Wind Correction

All the maneuvers that we fly must be wind corrected. It is the responsibility of the pilot to fly a "true" figure for the judge no matter what the wind may be doing. However:

- No deductions are to be made for plane attitude required for wind correction.
- No deduction for wind caused displacement that occurs when the aircraft is stalled. There are four instances in our maneuvers when the aircraft is stalled. They are: Spin entry & rotation; Snap; Hammer rotation; Tail Slide slide.

Given the preceding all normal judging rules apply resulting in appropriate deductions.

2. - Line/Arc Alignment

Within the three axis air space we fly lines that must be :

- parallel to the X or Y axis
- Either horizontal, vertical or at a 45 degree angle to the horizontal
- Flown with the wings perpendicular to the prescribed plane of flight.

At all times, the judge must rate each line within the figure and measure it against this standard. Should the aircraft deviate from any one, two or all three axis', each deviation should result in a deduction that is .5 of a point for each 5 degrees of deviation.

For example, if the Aresti calls for a 45 degree up line to be flown parallel to the X axis and the pilot flies the aircraft such that the line is moving away from the judges at a 20 degree angle (yaw) and is also 35 degrees to the horizontal (pitch) instead of the required 45, the deduction for that line within that maneuver is 3 points (2 for the 20 deg yaw deviation and 1 for the 10 degree deviation from the 45 deg up line). If the aircraft also has its wings at a 5 degree angle (roll) to the plane (geometric...) of the required 45 degree up line he gets dinged another .5 of a point.

This three way standard (yaw, pitch and roll) must be applied to all lines within all figures. In addition, the yaw standard (track parallel to the X or Y axis) and the roll standard (wings perpendicular to the geometric plane of flight) applies to the arcs that join the lines within figures and should be judged to the same downgrade of .5 of a point for 5 degrees of deviation

3. - Line Omission

There are certain instances where an aircraft may omit a required line and still be judged to be in accordance with the Aresti. Two examples are:

- omitting the line that is required to be flown between maneuvers
- omitting one or both of the line segments that are supposed to be flown on either side of an optional roll element done on a line

If this occurs, the standard deduction is 1 pt for each omitted line. However, the F&JG is specific on the deduction for the first example just given. It is 2 points - one from each of the two figures that should have been joined by the line. Note that this is an inconsistency as the F&JG also says that the line between figures belongs to the second figure of the two. However, judge it by the book and deduct 2 points (1 each from the two figures...) for the line omitted between figures.

4. - Line Addition

It is also possible for a pilot to fly a line where he shouldn't. For example, an Immelman with an half roll at the exit is to have NO line between the 180 degree half loop and the half roll. If there is a visible line, it is a 2 point deduction.

Note that the F&JG indicates that if the unwanted line is noticeably extended, this deduction should be increased. However, it gives no guideline for what the increase should be nor does it say when a very long line is sufficient to zero the maneuver. You are on your own in these cases - just be consistent.

5. - Line Length

In general, the lines within Base Figures need not be the same length. There are cases, however, where they need to be of equal length. These cases are maneuver specific so you have to bone up on the Flying & Judging Guide. Some examples are:

- The sides of square, diamond and octagon loops
- The lines in Family three figures (usually only seen in the upper classes)
- The length of the 45 degree lines in a Cuban Eight

If the lines are supposed to be of equal length and they are NOT, the deductions are:

- A visible length variation but less than 2 to 1 results in a 1 pt deduction
- A variation of 2 to 1 but less than 3 to 1 results in a 2 pt deduction
- A variation of 3 to 1 or more results in a 3 pt deduction max

In such a case the first line flown <u>within</u> the figure sets the standard against which all subsequent lines are compared.

As noted, the general rule is that lines within figures do not need to be of equal length. Some examples where you might intuitively think that the lines that form the base figure should be of equal length but in fact need **NOT** be equal are: Figure N, Figure Z, or the up/down lines within Humpty's, Stall Turns and Tail Slides .

6. - Line Centering

Snaps and rolls are optional elements and when executed on a line, they are supposed to be centered on that line. Also, there may be more that a single optional element called for on one line. If so, the sum total of the combination of optional elements is to be centered. The centering requirement calls for the airplane to fly equal line segments on either side of the optional element(s). If these line segments are not equal then deductions are to be made in a similar fashion to the line length rule above:

- A visible length variation but less than 2 to 1 results in a 1 pt deduction
- A variation of 2 to 1 but less than 3 to 1 results in a 2 pt deduction
- A variation of 3 to 1 or more results in a 3 pt deduction max

With optional elements the pilot may erroneously omit one or both of the line segments formed by the optional element done on the line. This results in the following deductions:

- Omitting both line segments results in a 2 pt deduction
- Omitting one of the two line segments results in a 4 pt deduction.

This last item is calculated as 1 pt for the omitted line and 3 pts for having very different line lengths, i.e., something versus nothing.

Note that a spin, an optional element, will always be the first element within a maneuver. Within that maneuver, the spin may be followed by snaps or rolls on the spin exit line. These snaps or rolls do NOT have to be centered on the down line that follows the spin. Centering, in this instance, is not a judging criteria.

7. - Corner

All the corners that we fly are required to follow a smooth constant radius. The downgrade for flying a sharp corner is not specified. A deduction of 1 pt for each sharp corner flown within the maneuver is suggested. What constitutes “sharp” is up to you. Just be consistent.

8. - Radius

All arcs we fly, partial loop up to a full loop, must be of constant radius once the radius is established. There is no guideline provided for how much of a radius a judge must see before deciding what the radius is. Again, its up to you. However, once you decide what the initial radius looks like, any deviation is to be penalized. The deduction is 1 pt for <u>each</u> variation in radius. So once the pilot starts an arc, if you then observe any tightening or easing of the initial radius, you should deduct 1 pt for <u>each</u> occurrence.

9. - Follow the Arc

Optional roll/snap elements may also be flown on arcs, e.g., a roll at the top of a closed loop. In these instances the flight path of the aircraft during the execution of the optional maneuver is required to track the arc. If it does not track the arc, the deductions are:

- 2 pts if the optional maneuver does not follow the curve of the arc
- 2 pts per visible line (not curved) on either side of the optional maneuver, if any

As noted above, the optional elements may actually be a combination of rolls and snaps. If this is the case, the execution of the total set of optional elements is still required to follow the arc of the Base Figure and the above deductions apply.

10. - Arc Centering

In addition to "Follow the Arc", the optional elements done on an arc must be centered on that arc, e.g., the roll done at the peak of a closed loop should be executed such that the aircraft is half way through the roll element at the exact peak of the loop. If the pilot doesn't achieve this he is to be penalized .5 per 5 degrees that he misses the center.

11. - Roll Execution

When an optional roll element is called for on a line or arc there are two things which are left up to the pilot and which are not judging criteria. They are:

- Rate of roll
- Direction of the roll. If, however, the roll is part of a combination of roll elements, the later element may be specified as "opposite" by the Aresti and so, the pilot only has this choice for the first element in the combination. Also, the Aresti may require that the airplane exit in a particular direction which may dictate the roll direction.

Given the preceding, the aircraft is required to:

- Have a constant rate of roll and is penalized 1 pt for each visible variation
- Except for a snap, maintain heading through the roll and is penalized .5 per 5 degrees of pitch and/or yaw deviation
- Stop the roll precisely at the point called for by the Aresti and is penalized .5 per 5 degrees that his stopping point is too much or too little
- Fly linked rolls as a continuous movement and a pause zeros the maneuver

12. - Roll Hesitation

A simple roll (non snap, non hesitation) is to be flown without any pauses in its rolling motion. If there is a visible pause prior to the completion of the called for degree of rotation, the maneuver is to be zero'd.

A point or hesitation roll must:

- Include exactly the number of pauses called for by the Aresti. Any more or less than what is called for by the Aresti zeros the maneuver
- Have the same interval for its pauses and periods of rotation and is to be penalized 1 pt for each visible variation.

Note that unlinked and opposite direction roll elements are required to have a momentary but perceptable pause between the opposite rotational elements. There is obviously a stop (physics...) so the key word here is perceptible. The F&JG does not specify what the penalty is for omitting the pause - 1 pt is suggested. If the pause is extended such that the judge notes a visible line between the opposing rotational movements, the penalty is 2 pts per the Line Addition Rule.