The CIVA FairPlay System
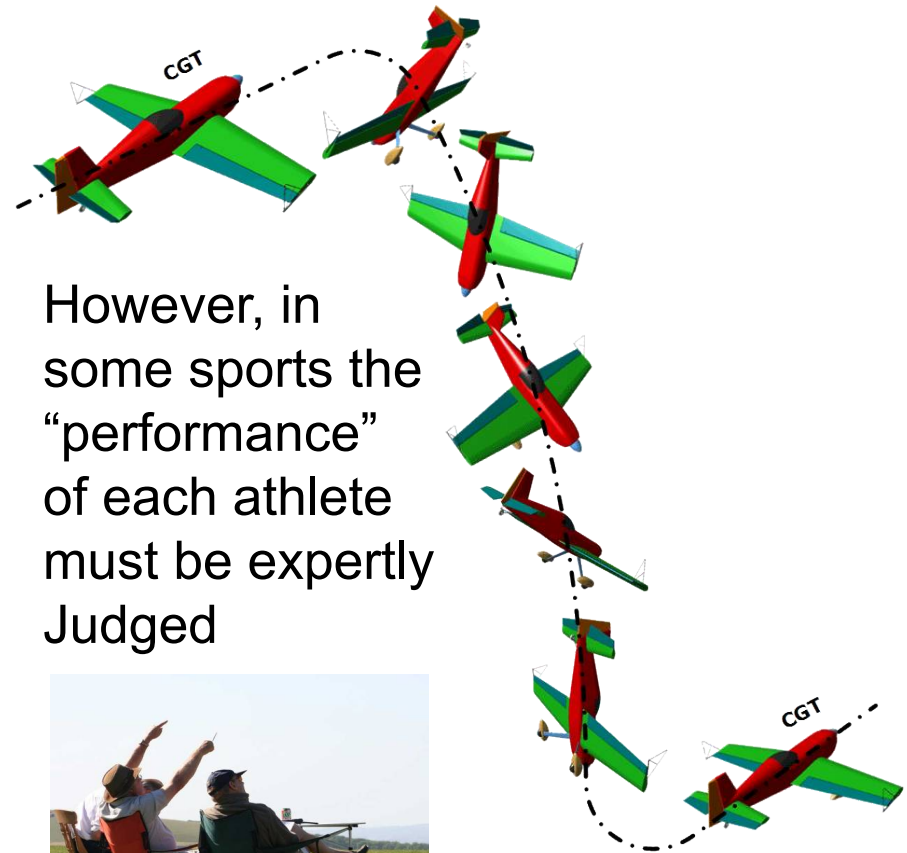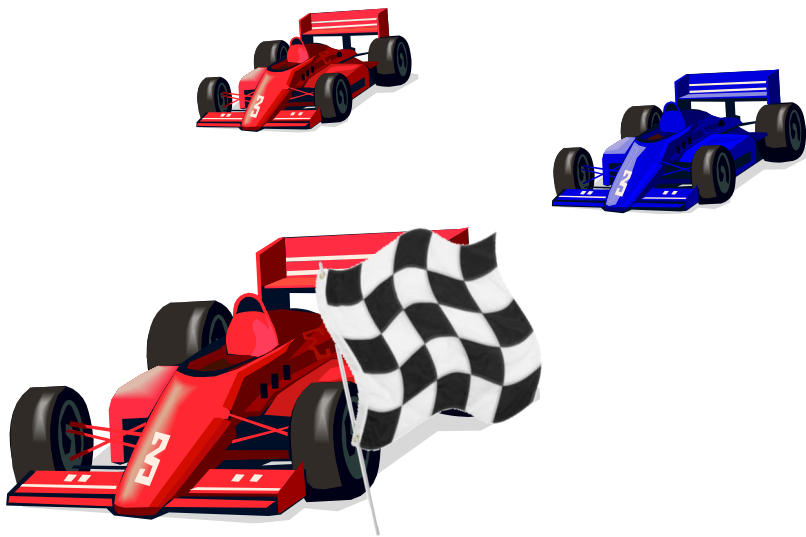## *and* ACRO contest software

FairPlay

- *Why do we have it?*

- *What does it do?*

- *Pilots FP Score Sheets*

- *Judges Ranking Index*

- *Judge Analysis reports*

The Basics

In most sports it is pretty easy to see who is the winner – it's the person who gets to the finishing line before anyone else ….

However, in some sports the "performance" of each athlete must be expertly Judged

Good examples are ice skating, gymnastics, high-board diving, dressage, and …..

COMPETITION AEROBATIC FLYING

# *Practical marking of aerobatic figures*

Figure geometry errors:

***Normal marks*.** Judges add-up the downgrades they see and subtract the total from ten. This mark can be between **10.0** (perfect!) and **0.0** (the numeric zero)

Major errors:

The Hard Zero. If the figure flown is not the one specified on the judges Form-B or Form-C paperwork, then he should award an "**HZ**"
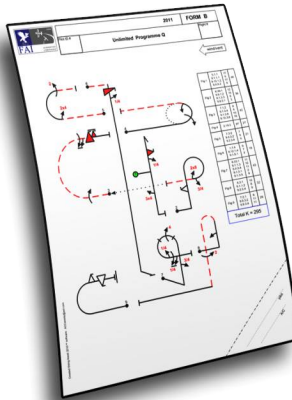
The Average:

If a judge can't reach an appropriate mark for any reason, then he should ask for an average or "**AV**"
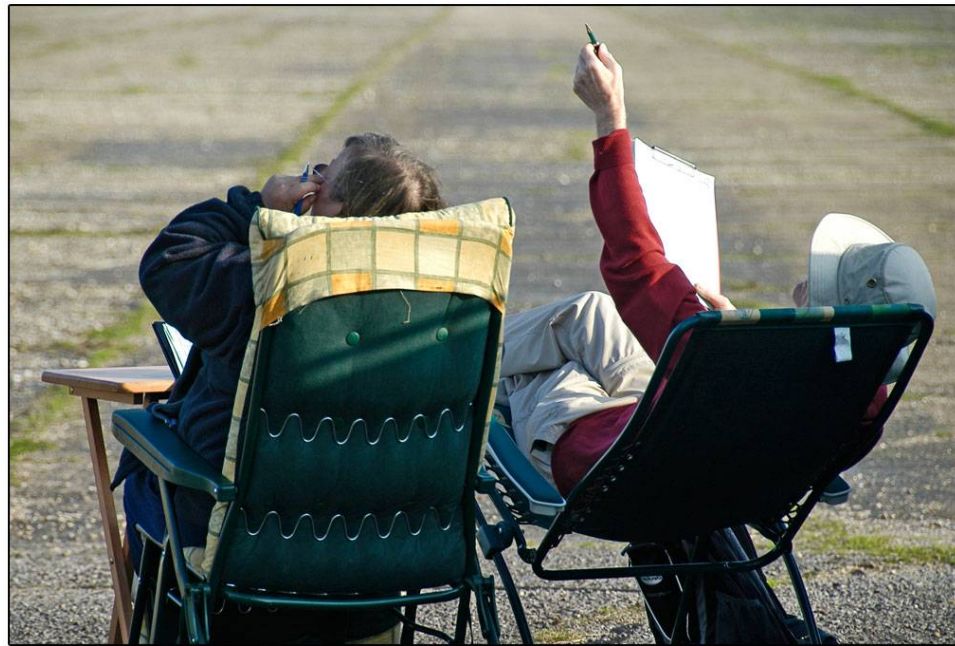
Opinions

In aerobatic sequences, judges use a complicated set of Rules to give their **OPINIONS** about key elements in each pilots flight

*Even though we have strict rules about **how** to judge, because we are human **all** judges can have slightly different opinions about exactly the same things*

Most judges mark in a very similar way

However …..

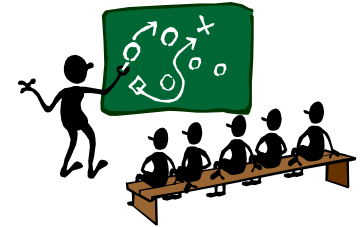☞ We completely miss some ***little*** things …

☞☞ We can concentrate on the detail and miss some ***big*** things …

☞☞☞ And occasionally we make ***plain old mistakes*** …

Managing different opinions

➢ Judges don't all see the same things all the time

➢ **Style** and unconscious **bias** are always present

☺ **Small** differences between judges marks are OK

☹ **Major** differences are problems that must be resolved in a sensitive and appropriate manner

Judging errors arise from:

✘ Poor team work – Judge / Caller / Scribe

✘ Failure to see critical details

✘ Poor understanding or application of the rules
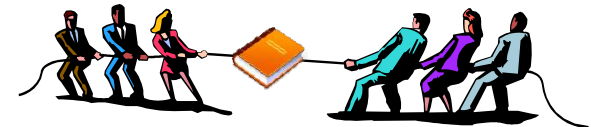
Pilots must get the benefit of any doubt!

☑ If a judge gives a mark that is significantly different to the marks from the other judges, then it may simply be "wrong" and we should investigate it

7.5   7.0
8.0   4.5
9.0   8.5

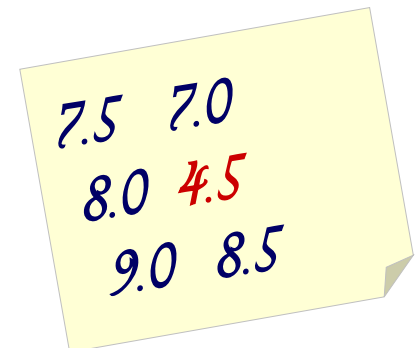# *Influences on the Results*

Every raw mark from every judge has **the same power** to influence the result, whether it is similar to or very different from the other judges marks

An experienced judge will see most of the pilots "errors" and downgrade the marks more, with a consistent spread of grades

On the other hand, some judges do not see all the "errors" and so they give less downgrades and are usually not as consistent

The simple way to calculate the final result is to add up all the marks and average them to remove the differences between the judges

Results: Free Individual
9th FAI WAAC, Radom, 05 - 15, Aug. 2010
Advanced World Champion
Sequence: Programme 1: Free Programme

Rank	Team	M/F	Pilot	Aeroplane	Registration	Free
1	RSA	M	Nigel Hopkins	MX2	N88MX	2736. 10
2	FRA	M	Julian Ehrhard	CAP 231	F-GDTT	2670.2
3	FRA	M	Baptiste Vignes	CAP 231	F-GVFF	2669
4	RUS	M	Anton Berkutov	Yak 55	RF00178	2669
5	USA	M	Reinaldo Beyer	Extra 300L	N779R	266
6	RUS	M	Michael Bezdenezhnykh	SP 55	RA1034G	
7	RSA	M	Mark Hensman	MX2	N88MX	
8	UKR	F	Tamara			
9	FRA	M				

Unfortunately ….

The sharper judges who "see" more errors and give the pilots lower marks will have __less__ influence
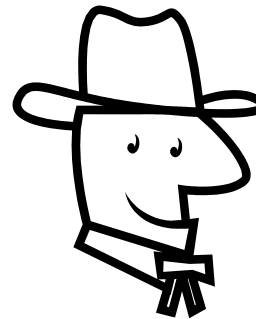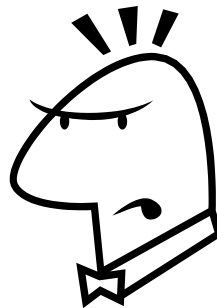
Other judges who "miss" downgrades and give out higher marks will normally have __more__ influence in the Results

Can we test marks for "confidence"?

To be completely **FAIR** we need a way to check every mark so that we can identify judgements that are unusually different from other judges opinions

For each 'unusual' mark that we find we must:

✓ *Test to see whether it is acceptable or not, using a practical* **confidence check** *to compare it to the other judges marks*

And - if it **is** proven to be unacceptable then:

✓ *We must remove the unacceptable mark and make a careful substitution that is* **in the style of that judge**

The computer **DOES** **NOT** **KNOW HOW TO JUDGE !**

But it *can* compare each judge to the other judges, and the FairPlay system can remove all anomalies from the final results

The CIVA FairPlay process

The FairPlay System is actually very simple

It follows the same set of simple steps that YOU would …. if only you could do the work fast enough with such a lot of information

Computers can do millions of sums very quickly and run statistical programmes that closely mimic the way humans think

So: **Let the computer do all the hard work …**

The key to FairPlay is . . .

It works on a ***figure by figure*** basis so that it only ever compares LIKE with LIKE. This is a major difference from the old TBLP process

Before FairPlay starts:
Confirm or deny the Hard Zero's – the "CHZ"

After each flight the judges decide whether any figures should be given a **Hard Zero**. This must be by majority agreement, and video may be used to help make the decision

On the Pilots Score Sheet:

➢ Where a Hard Zero is <u>agreed</u> the Chief Judge confirms it :

► *On the Flight Summary Sheet the figure is annotated "CHZ".*
► *Other marks will be* boxed *and are then called "Missing"*

➢ Where the majority of judges do <u>not</u> support the Hard Zero then:

► *On the Flight Summary Sheet the figure is annotated "OK".*
► *Judges HZ marks are* boxed *and are then called "Missing"*

The Pilots Raw Marks Check Sheet

Raw Marks Check-Sheet
Tony Maxwell, Pitts S-2B G-III
Level: Advanced - Power, Sequence: 2nd Unknown Sequence
Icicle & Newbold Trophies, Sandtoft, 10th April
Chief Judge: Green Hill
Judges: 1 - Green Hill, 2 - John Askew, 3 - Ian Scott
4 - Nick Buckenham, 5 - Lynne Westnage,

Fig No.	K Factor	CJ1	J2	J3	J4	J5	CHZ's	Av'ge marks	Equiv. scores
1	26	6.0							
2	17	6.0	6.0	6.0	6.0	7.0		6.2	161.2
3	29	5.0	4.0	3.0	8.0	8.0	OK	5.8	98.6
4	25	6.5	8.0	2.0	7.0	6.0	OK	5.6	162.4
5	27	2.0	6.0	5.0	7.0	6.0	OK	6.1	152.5
6	23	5.0	6.0	HZ	7.5	7.0	OK	5.6	151.9
7	29	6.0	7.0	7.0	5.5	6.0	OK	6.1	140.3
8	30	2.0	3.0	5.0	4.5	PZ	OK	4.6	134.1
9	19	8.0	6.0	4.0	1.0	4.0	OK	3.4	102.0
10	27	4.0	AV	7.0	6.5	8.0	OK	7.4	140.1
Posi	40	5.0	6.0	5.0	6.0	6.5	OK	5.5	148.5
			6.0	5.0	5.0	6.5		5.5	220.0

Penalties:	Qty	Value	Deduct
Too Low	0	200	0.0
Too High	0	30	0.0
Box Outs	0	20	0.0
Interruptions	1	100	100.0
Insertions	0	100	0.0
Missed Slot	0	200	0.0
Trg. Violation	0	30	0.0
Faulty W/Rocks	0	30	0.0
Other Penalty	0	10/sec	0.0
Total awarded:			100.0

Max. possible score:	2920.0
Raw equiv. score total:	1611.6
Minus 100 penalty points:	1511.6
Pre-FP score estimate:	51.8%

Aerobatic Contest Results Organiser, Version 3.0 Build 28-01-11
This report created at 15:33 on 15 March 2011

This sheet allows the pilot to check that the marks have been correctly entered into the scoring computer, and talk to his Team Manager if he wishes to consider a protest about any aspect of the data.

The "Equivalent scores" that are given here are simple calculations based on the Raw Marks. The FairPlay system has not yet been used.

These sheets are published on the web until the sequence is completed – they are then replaced by the Pilots FairPlay sheets and all scores are final

FP Step 1: *Normalisation …. balance the judges output*

We must adjust each judges set of figure marks so that they <u>all</u> have the **same AVERAGE and SPREAD**. This does *not* affect the pilot rankings
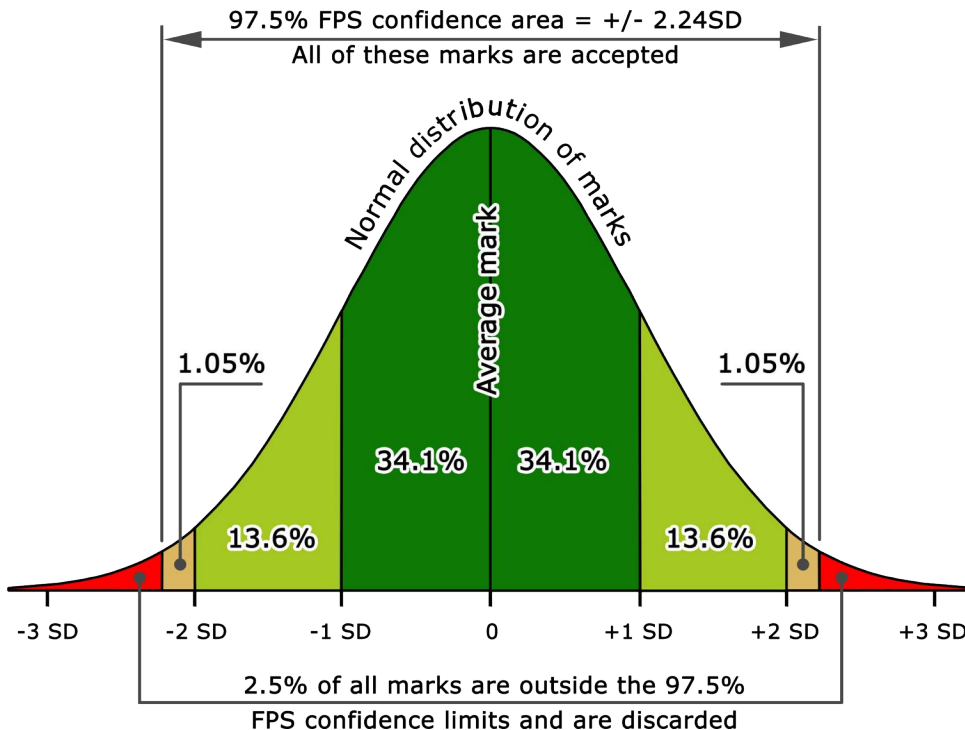

These are the Raw marks from each Judge

| Judge-A | Judge-B | Judge-C | Judge-D | Judge-E | Judge-F | Judge-G | Judge-H | Judge-I | Judge-J |

Mean per Judge:
7.109   6.902   6.924   7.435   6.656   6.989   7.600   6.957   7.543   7.391

Spread (Std.Dev) per Judge:
0.649   0.750   1.033   0.638   0.789   0.891   0.472   0.855   0.942   0.971

The same marks after Normalisation, now ready for the FPS Confidence Tests

Mean:
7.151 (all Judges)
Spread (Std.Dev):
0.797 (all Judges)

Raw and Normalised Data
from figure-1 of the WAC 2009 "Q" sequence

Only **non-zero** marks are normalised - HZ's and Av's are ignored

The "normal" spread of figure marks

If we make a graph to show how the normalised marks for all pilots flying one figure compare, the distribution we should expect will look something like this:

97.5% FPS confidence area = +/- 2.24SD
All of these marks are accepted

Normal distribution of marks

Average mark

1.05%   1.05%

34.1%   34.1%

13.6%   13.6%

-3 SD   -2 SD   -1 SD   0   +1 SD   +2 SD   +3 SD

2.5% of all marks are outside the 97.5%
FPS confidence limits and are discarded

Approximately 68% of the marks would be in the dark green area within one Standard Deviation (SD) of the average, a further 27% in the lighter green area would be within two SD's, and so on to 100%

In FairPlay we accept all normalised marks within the central 97.5% confidence area. These marks are all within **2.24** SD's from the overall average mark
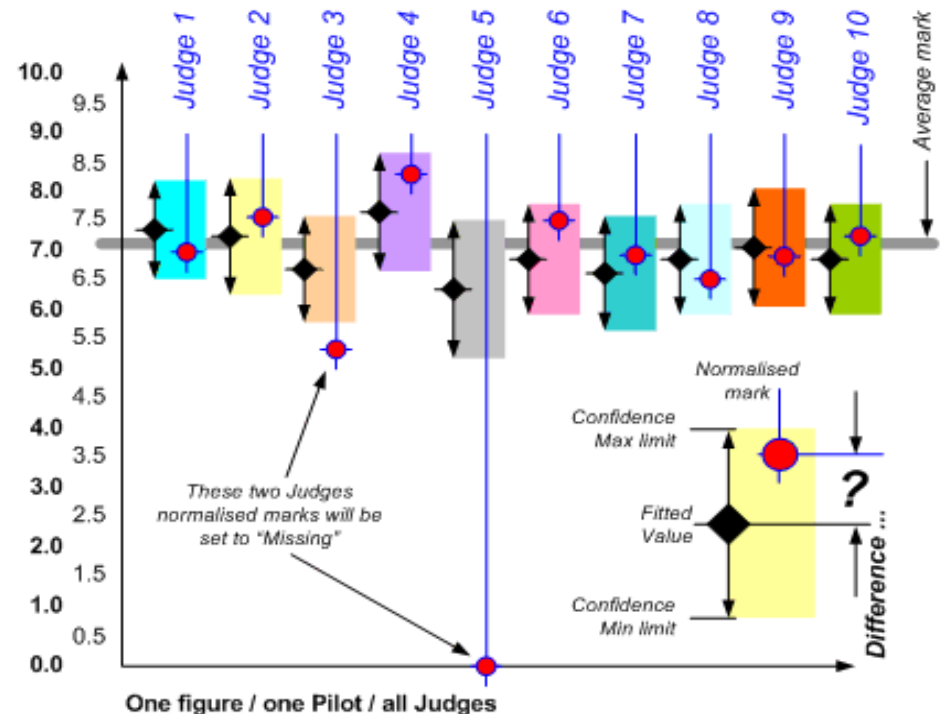
FP Step 2: The Confidence Test

Here we take each figure separately so that all comparisons are valid

For each Judge an ideal set of "Fitted Values" is calculated to match the Judge's style, based on the spread of the judges normalised marks data

Every pilots normalised mark for this figure must now pass a Confidence Test, to see if it is close enough to the corresponding Fitted Value

➢ Normalised marks that fall **within** the confidence limits remain unchanged

➢ Normalised marks that **fail** the test are rejected by setting them to "Missing"

After this step we can be confident that ALL of the remaining marks are free of detectable anomalies

Judge 1 Judge 2 Judge 3 Judge 4 Judge 5 Judge 6 Judge 7 Judge 8 Judge 9 Judge 10 Average mark

These two Judges normalised marks will be set to "Missing"

Normalised mark
Confidence Max limit
Fitted Value
Confidence Min limit
Difference ...
?

One figure / one Pilot / all Judges

FP Step 3: Replace "Missing" marks that were rejected

Now that all the anomalies have been removed, FPS can make a _new_ table of Fitted Values that is built from all of the remaining "good" data

In each "Missing" slot where an unacceptable mark was identified, FairPlay now substitutes a new error-free **Fitted Value** in it's place

On the Pilots FairPlay Check Sheet the rejected mark will be shown in red and the Fitted Value that replaces it will be below it in black

Lo 6.261
7.724

At the conclusion of this step we can be confident that in every figure no mark is unusually different from the other judges marks, and that the majority view of the Judging Panel has been carefully used to give every Pilot a fair and balanced result

Here the final FPS marks for each judge are multiplied by the figure K-factors, and a preliminary set of scores is calculated for each pilot

For example:

	Judge 1	Judge 2	Judge 3	Judge 4
Pilot 1	1692.98369	16529.4723	1593.56274	1785.28452
Pilot 2	1681.48956	16486.9437	1628.40021	1709.03743
Pilot 3	1704.42793	17109.3749	1680.28642	1599.28754
etc …..				

Of course … all the scores from each judge will be slightly different for each pilot, and now we must check between all the judges for undue

"BIAS"

FP Step 5: Testing for BIAS ….

Bias is a human characteristic that is impossible to avoid. It affects **<u>every</u>** aspect of our lives, and it makes us all different

It is **not possible** for judges to avoid some degree of bias in their marks, regardless of whether this is conscious or totally unconscious

In aerobatic judging we test for undue bias, and any that is above a pre-set confidence level is removed

The final step in FairPlay is to normalise the judges scores, and run another Confidence Test (this time at 90.0% = 1.65 SD limits)

Any undue bias that is found is resolved by setting the score to Missing and subsequently replacing it as usual with a Fitted Value
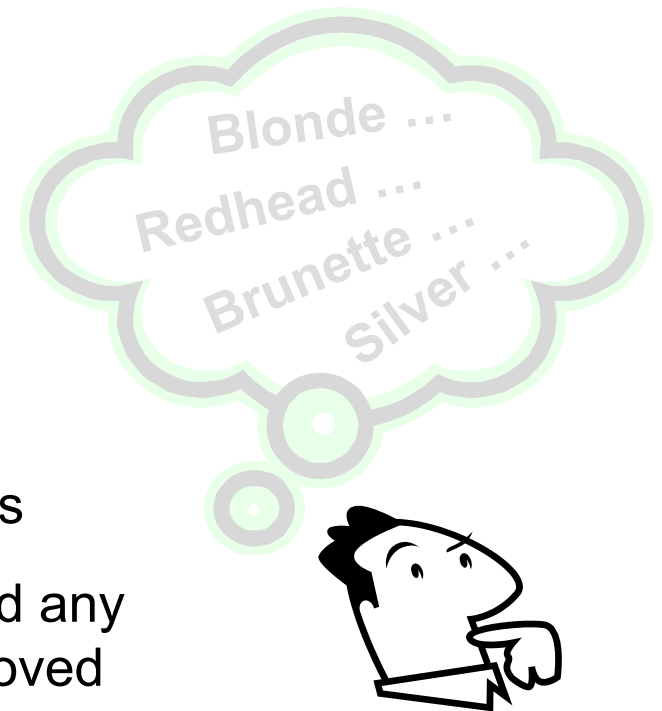
These final scores are now free of all anomalies and, after deduction of penalties, are used to create the final contest results

Blonde …
Redhead …
Brunette …
Silver …

How to 'de-code' your
Pilots ACRO FairPlay Processed Marks sheet

The header describes the pilot, nationality and aeroplane details, the level and sequence being flown and the event, place and date.

Figure numbers and K-factors for each figure.

All marks that FPS determines as "wrong" are shown boxed. This HZ was not matched by a Confirmed Hard Zero from the Chief Judge and must be replaced by a Fitted Value.

For a non-scoring Chief Judge, the gradable figures are labelled "OK" whilst figures given a Confirmed Hard Zero are shown as "CHZ".

The Chief Judge has awarded this figure a "Confirmed Hard Zero" and any non-HZ Judges marks are accordingly boxed.

The Positioning mark and if applicable the Harmony mark are shown by their first 4 characters.

Explains that all flights in this sequence have been completed, and the scores given here have been approved by the Jury for final publication.

The ACRO version and FairPlay settings are shown above the time and date of the report.

Example ONLY !

The Chief Judge (with non-scoring or scoring status) and the Judges details are listed in full.

FPS has determined for this figure that more than 60% of the Judges marks failed the relevant confidence test, and all marks for the figure have been replaced by Fitted Values.

An "Average" mark has been requested by the Judge, and FPS has given a Fitted Value.

In each pair of data rows the upper italic number is the raw mark given by the Judge.

The lower bold figure is either -
- the Normalised mark when this satisfies the relevant FPS confidence test, or ...
- the Fitted Value, substituted by FPS when the normalised mark fails the confidence test Hi or Lo, or the raw mark is already boxed.

Marks that are above or below the FPS calculated figure confidence limits are boxed with their Hi or Lo prefix, and the Fitted Value is substituted below.

For information purposes only and to assist Pilots to quantify the relative value achieved in each figure, the two right-most columns display the average mark for all Judges together with the "equivalent" score.

These are NOT formal FPS steps, nor is this data used in any subsequent calculations.

The FPS score for each Judge is shown. If FPS detects a High or Low sequence anomaly the score is annotated and the Fitted Value substitution shown below.

The final FPS processed score is shown, and any penalty points that have been awarded are deducted. The overall percentage scored is shown on the last line.

Processed Marks Check-Sheet - Pilot 005
Joe Bloggs (GBR) Sukhoi 26 G-ABCD
Unlimited level - Programme 2: Free Unknown

17th FAI EAC, Touzim CZE, 02. - 12.Sep.2010

Chief Judge: Nick Buckenham (non-scoring)
Judges: 1 - Nick Buckenham (GBR) 2 - Francis Itier (FRA) 3 - Gabor Talabos (HUN)
4 - Algis Orlickas (LTU) 5 - M. Bezdenezhnykh (RUS)
6 - Vladimir Kotelnikov (RUS) 7 - Georges Brocard (SUI)
8 - Lyudmila Zelenina (UKR)

Fig No.	K Factor	SF CJ1	J2	J3	J4	J5	J6	J7	J8	Av'ge marks	Equiv. scores
1	66 7	OK	6R 7.0	6R 5.0	6R 4.5	6R PZ	6R PZ	6R 7.0	6R PZ	3.36	221.76
			1.36	4.64	4.06	3.83	2.80	2.64	3.16	3.21	212.08
2	6 5	OK	8.0	8.0	8.5	8.5	8.0	9.0	8.0	8.29	49.74
			8.53	7.90	8.23	8.97	7.86	8.82	7.93	8.32	49.91
3	46 7	OK	6.5	5.0	AV	7.5	6.5	6.5	7.0	6.50	299.00
			6.67	5.87	6.61	7.46	6.49	6.61	6.87	6.65	306.09
4	53 7	OK	6.5	5.0	7.0	7.0	Lo PZ	7.5	7.5	5.79	306.87
			6.59	6.10	6.47	7.19	6.80	7.26	7.34	6.82	361.44
5	6 7	OK	HZ	6.0	8.0	7.5	7.5	7.5	7.5	6.29	37.74
			7.26	6.60	7.18	7.80	7.50	7.17	7.30	7.26	43.54
6	38 6	OK	7.0	6.5	7.0	5.0	7.0	7.0	7.0	6.64	252.32
			7.17	6.87	5.71	5.76	7.26	6.64	6.92	6.62	251.50
7	37 5	OK	7.0	6.0	7.5	7.5	7.0	8.0	Lo 6.0	7.00	259.00
			7.23	6.11	7.32	7.73	7.29	7.55	7.21	7.21	266.64
8	66 7	OK	6.5	3.5	5.5	6.0	4.5	6.5	4.0	5.21	343.86
			5.69	4.83	5.00	6.20	4.07	6.42	4.61	5.26	347.03
9	6 7	OK	8.0	7.5	7.5	7.5	7.5	8.0	7.0	7.57	45.42
			8.22	7.52	7.29	7.69	7.56	7.67	7.04	7.57	45.43
10	31 7	OK	7.0	7.5	7.5	8.0	6.5	8.0	7.0	7.36	228.16
			7.11	7.56	7.16	8.20	6.72	7.54	6.99	7.33	227.11
11	22 2	OK	7.0	3.5	7.5	Lo 3.5	6.5	Hi 8.0	Lo 4.0	5.71	125.62
			7.22	5.00	7.05	6.51	6.78	6.51	6.51	6.51	143.25
12	6 7	OK	8.0	8.5	Lo 7.0	8.0	8.0	8.0	7.0	7.79	46.74
			8.06	8.23	7.92	8.31	7.86	7.68	7.36	7.92	47.50
13	44 7	CHZ	HZ	HZ	6.5	6.0	HZ	HZ	HZ	0.00	0.00
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	40 7	OK	6.5	6.0	7.0	6.5	6.5	6.5	6.0	6.43	257.20
			6.52	6.09	6.74	6.69	6.74	6.19	6.08	6.44	257.47
Posi	60 1	OK	7.0	Lo 5.5	7.5	7.5	7.0	8.0	6.5	7.00	420.00
			7.08	7.25	7.42	7.61	7.04	7.53	6.82	7.25	434.99

Sequence has been completed: Sequence scores here are FINAL

Anomalies:				(High)			
Scores:	2918.88	2924.05	3046.74	3203.07	2915.77	3032.50	2921.06
FP-sub:				2995.33			

Final processed score total (of max. possible 5270):	2964.90
Minus 300 penalty points:	2664.90
Processed score valuation:	50.57 %

Aerobatic Contest Results Organiser, Version 3.0 build 28-12-10
Calculations by: FairPlay (non-scoring CJ + CHZ Summary) method
This report created at 12:13 on 29 December 2010

FairPlay and the RI: The Judges Ranking Index

After FairPlay has run we can compare how each judges Raw Marks would have ranked the pilots, as though the judge was working alone.

The **Judges Ranking Index** is calculated by comparing each judges "Raw" rank order of pilots with the final FairPlay results. The RI is **zero** if the judge puts the pilots in **exactly** the same order as FPS, but gets bigger as the judges ranking of pilots becomes increasingly different to the FPS results. The RI is also increased where the judges score varies more from the FPS score ….

An RI less than 15 is quite good, between 15 and 25 indicates that the judge is more different from the other judges, and over 25 then the judge should seek advice from the Chief Judge to see if some further help may be required

To achieve a good RI you must simply get your scores for each pilot reasonably close to the overall final FPS results

AND FINALLY: CIVA sorts the judges RI's LOW to HIGH to create a list of average **Judge Rank Positions** – the **JRP**. These provide a useful ranking that shows how well each judge has matched the final results at every championship. The **JRP** list is used by the CIVA Judging Committee as a helpful guide during the next year's judge selections.

JRP = 3.67

ACRO also provides . . .

For Pilots:

A completely open web-based review of all Raw and FairPlay sequence marks and scores for *everyone* to see, compare, discuss, analyse . . .

For each Judge:

A fully detailed comparative analysis for every sequence that shows where the judge differs from his colleagues

For the Chief Judge:

An overall analysis that summarises and compares each member of the Judging Panel, and shows national influences
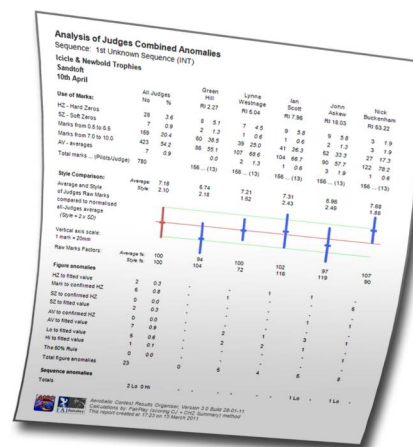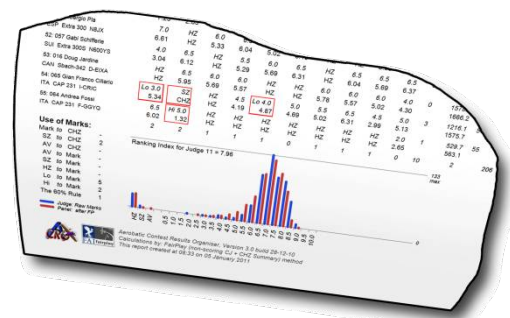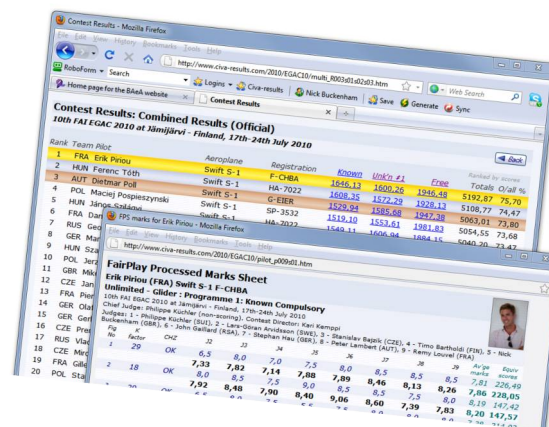
Judge Individual Analysis example

Example ONLY !

The standard data describing the event, judge, place, date, level and sequence.

The judges raw grade for each pilot is shown in italic type.

The normalised grade is shown below the raw grade, rounded to 2 decimal places. ¶

A Hard Zero is here replaced by a fitted value because the Chief Judge did not give a CHZ.

A Perception Zero rejected by FPS is replaced by a Fitted Value and shown boxed in Green

In this column the number of FPS fitted values for this pilot is cumulated.

The upper number in each pair is the judges raw score for each pilot, cumulated from the raw data prepared for the RI and each figure's K factor.

Pilots are presented in the rank order of their final post FPS scores PRIOR to the deduction of penalties.

The lower number is the FPS score for this judge per pilot, cumulated from the judges own final FPS grades and each figure's K factor.

Where an FPS fitted value is substituted for the judges grade it is boxed in red and the anomaly identified.
Reasons are:
Hi – the grade is too high
Lo – the grade is too low
6R – the 60% rule is applied

This is the rank for each pilot based on this judges raw score.

The difference between the judges raw pilot rank and the pilot's final overall FPS rank (excl. penalties) is given.

Pilots with the same nationality as the judge are boxed in blue to highlight this association

Where the FPS confidence test shows the judges sequence score to be too high or low and replaces it with a fitted value, the score is boxed in red and the anomaly identified.

Summary of the grades revised to fitted values.

The FPS Ranking Index (RI) for this judge.

Histogram key.

The Histogram shows judges use of each raw grade compared to post-FPS all judges average use.

If the sequence fitted value is used and the nationality of the judge matches the pilot, the score is boxed in blue to highlight the relevance of this match.

Cumulative totals line for anomalies in the above data.

Number of times the most used grade was applied.

Judges Single Sequence Processed Marks Analysis for J3 - Henry Sharpeyes (GBR)
17th FAI EAC, Touzim CZE, 02. - 12.Sep.2010
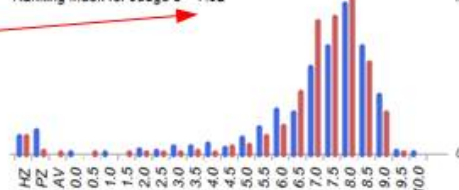**Level: Unlimited, Sequence: Programme 2: Free Unknown**

FP Rank before Penalties	Fig-1	Fig-2	Fig-3	Fig-4	Fig-5	Fig-6	Fig-7	Fig-8	Fig-9	Fig-10	Fig-11	Fig-12	Fig-13	Fig-14	Posi	No	RI/ FP	J-rank	Diff
1: 038 Renaud Ecalle	8.5	9.0	8.5	9.0	8.5	8.0	8.5	7.0	8.5	7.5	8.0	9.0	8.5	8.0	8.5	0	4286.0	1	
FRA Extra 330SC F-TGCI	8.08	8.71	8.48	8.66	8.42	8.01	8.38	7.52	8.27	7.57	8.07	8.68	8.36	7.91	8.39		4296.0		
2: 003 Mikhail Mamistov	8.5	9.5	9.0	6.5	9.0	8.0	7.5	8.5	8.5	8.5	7.5	9.0	8.0	8.0	8.0	0	4197.5	5	-3
RUS Sukhoi 26M3 RF-00631	8.08	9.23	8.89	7.13	8.82	8.01	7.64	8.33	8.42	8.17	7.60	8.72	7.96	7.91	7.92		4202.2		
3: 026 Alexander Krotov	8.0	8.5	8.5	8.0	9.0	7.5	7.5	9.0	9.0	8.0	7.5	8.5	7.0	8.0	8.0	0	4202.6	4	-1
RUS Sukhoi 26M3 RF-00665	7.79	8.41	8.38	8.30	8.82	7.65	7.64	8.66	8.88	7.87	7.60	8.27	7.16	7.91	7.92		4196.3		
4: 018 Elena Klimovich	8.0	9.5	8.5	8.0	HZ	8.0	8.0	7.5	9.0	8.0	7.5	9.0	8.5	8.5	8.5	0	4280.6	2	+2
RUS Sukhoi 26M3 RF-00631	7.79	9.23	8.38	8.30	8.37	8.01	8.06	7.65	8.88	7.87	7.60	8.72	8.36	8.35	8.39		4281.4		
5: 007 Victor Chmal	8.0	8.5	8.5	8.0	HZ	8.0	8.0	8.0	8.5	8.0	7.5	8.5	7.5	8.5	9.0	0	4230.8	3	+2
RUS Sukhoi 26M3 RF-01059	7.79	8.41	8.38	8.30	HZ	8.01	8.06	7.99	8.42	7.87	7.60	8.27	7.56	8.35	8.86		4229.5		
6: 045 Oleg Shpolyanskiy	7.5	8.5	8.5	PZ	9.0	7.5	8.0	8.0	8.5	8.0	7.5	8.5	8.0	8.5	8.0	0	4131.0	7	-1
RUS Sukhoi 26M3 RF-00665	7.50	8.41	8.38	6.60	8.88	7.65	8.06	7.99	8.27	7.87	7.60	8.43	7.96	8.35	7.92		4132.0		
7: 032 Olivier Masurel	5.75	8.27	5.97	8.0	8.5	7.5	8.5	6.8	7.51	6.97	6.19	8.27	5.97	5.71	6.50		3230.0		
36: 025 Pierre Marmy	2.0	8.5	7.0	4.0	8.0	7.0	5.5	HZ	8.0	8.5	7.0	8.5	Lo 3.0	7.0	7.0	1	Lo 2934.6	38	-2
SUI Sukhoi 26 HB-MSO	4.29	8.41	6.83	5.18	8.00	7.30	5.97	HZ	7.97	8.17	7.13	8.27	6.55	7.03	6.97		3218.8		
37: 034 Jerome Cusin	5.0	8.5	6.0	7.5	8.5	7.5	7.0	2.5	8.0	5.5	Hi 6.0	8.0	6R 5.0	6.0	7.0	2	3365.0	32	+5
SUI Extra 330SC HB-MTM	6.04	8.27	6.38	7.65	8.42	7.65	6.83	4.00	7.82	6.37	5.01	7.61	3.50	6.15	6.97		3225.4		
38: 023 Francois Rallet	HZ	8.5	6.0	6.5	Lo 7.0	6.0	7.0	4.0	7.5	7.5	5.0	6.0	7.0	6R PZ	8.5	2	2860.8	40	-2
FRA Extra 330SC F-TGCI	HZ	8.28	6.51	7.00	8.37	6.48	6.86	5.14	7.50	7.56	5.40	6.22	7.20	2.02	8.31		2950.5		
39: 005 Joe Bloggs	6R 7.0	8.5	7.5	7.0	Hi 8.5	8.0	8.5	Hi 7.5	8.5	8.0	Hi 8.5	9.0	HZ	7.5	Hi 8.5	5	Hi 3762.0	19	+20
GBR Sukhoi 26 G-ABCD	4.79	8.28	7.61	7.32	7.44	7.94	8.36	5.14	8.40	7.84	7.20	8.62	HZ	7.43	7.25		3054.5		
40: 040 Ulrich Pade	PZ	9.0	PZ	PZ	Lo 6.0	5.5	7.0	HZ	7.82	7.56	6.61	6.73	8.0	8.0	6.33		2825.7		
	4.70		6.60	5.7									3.70						
44: 008 Hanspeter Rohner	3.0	9.0	5.0	7.0	8.5	6.0	HZ	HZ	7.0	5.5	5.5	8.5	HZ	7.5	7.0	0	2454.9	44	
SUI CAP 232 F-GXCP	4.35	8.69	5.87	7.35	8.42	6.50	HZ	HZ	7.07	6.45	6.29	8.23	HZ	7.46	7.12		2474.6		
	3	0	4	5	2	4	1	6	3	2	5	1	3	4	4	47	4		120

Use of Marks:

Mark to CHZ	-	
PZ to CHZ	-	
AV to CHZ	-	
AV to Mark	-	
PZ to Mark	14	
HZ to Mark	1	
Lo to Mark	16	
Hi to Mark	6	
The 60% Rule	4	

Ranking Index for Judge 3 = 7.92

153 max

0

HZ PZ AV 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

Judge: Raw Marks
Panel: after FP

Aerobatic Contest Results Organiser, Version 3.0 build 28-12-10
Calculations by: FairPlay (non-scoring CJ + CHZ Summary) method
This report created at 12:41 on 29 December 2010

¶ Note the system works in double-precision mode using 16 significant characters, viz. 123.456789012345
The printed output is normally rounded to two decimal places for clarity.

The standard data describing the sequences in this analysis and the event, place and date.

The use of marks by each judge, cumulated in 5 categories.

Cumulative totals in each analysis area from all judges.

Comparison of Judges marking style against the Panel Average style

The FPS figure anomalies from each judge, cumulated in 9 categories.

The FPS sequence anomalies from each judge, cumulated by pilots nationality.

Example ONLY !

Number of sequences judged by each judge.

The FPS RI for each judge, either for a single sequence or averaged for multiple sequences.

Total data in this category per judge.

Percentage that this category represents of each judge's marks.

Totals of figure anomalies in each category per judge.

Grand total of figure anomalies per judge.

Totals of sequence Hi's and Lo's per nationality from each judge.

Data is boxed in blue where the judge and pilot nationalities match.

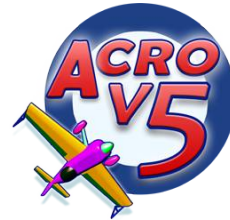Grand total of sequence Hi's and Lo's from each judge.

Analysis of Judges Combined Anomalies

Sequences: Programme 1: Free Programme (UNL), Programme 2: Free Unknown (UNL)

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			RUS		FRA		UKR		RUS		HUN		SUI		LTU	
			Vladimir		Francis		Lyudmila		M.		Gabor		Georges		Algis	
	All Judges		Kotelnikov		Itier		Zelenina		Bezdenezhnykh		Talabos		Brocard		Orlickas	
Use of Marks:	No	%	RI 4.61 [2]		RI 5.00 [2]		RI 5.44 [2]		RI 5.68 [2]		RI 6.34 [2]		RI 7.94 [2]		RI 10.37 [2]	
HZ - Hard Zeros	74	1.1	11	1.1	10	1.0	12	1.2	10	1.0	10	1.0	10	1.0	11	1.1
PZ - Perception Zeros	35	0.5	6	0.6	1	0.1	3	0.3	7	0.7	15	1.5	2	0.2	1	0.1
Marks from 0.0 to 6.5	988	14.1	151	15.1	173	17.3	137	13.7	156	15.6	200	20.0	110	11.0	61	6.1
Marks from 7.0 to 10.0	5888	84.1	828	82.8	816	81.6	845	84.5	825	82.5	774	77.4	875	87.5	925	92.5
AV - averages	15	0.2	4	0.4	0	0.0	3	0.3	2	0.2	1	0.1	3	0.3	2	0.2
Total marks ... (Pilots/Judge)	7000		1000 ... (81)		1000 ... (81)		1000 ... (81)		1000 ... (81)		1000 ... (81)		1000 ... (81)		1000 ... (81)	

| **Style Comparison:** | Average: | 7.39 | 7.34 | | 7.20 | | 7.38 | | 7.27 | | 7.28 | | 7.64 | | 7.61 | |
| Average and Style | Style: | 1.59 | 1.61 | | 1.34 | | 1.48 | | 1.54 | | 2.17 | | 1.52 | | 1.45 | |

Average and Style of Judges Raw Marks compared to normalised all-Judges average
(Style = 2 x SD)

Vertical axis scale:
1 mark = 31mm

| Raw Marks Factors: | Average %: | 100 | 99 | | 97 | | 100 | | 98 | | 98 | | 103 | | 103 | |
| | Style %: | 100 | 102 | | 85 | | 93 | | 97 | | 137 | | 96 | | 91 | |

Figure anomalies

HZ to fitted value	5	0.1	-		1		1		-		2		-		1	
Mark to confirmed HZ	7	0.1	-		2		-		1		2		1		1	
PZ to confirmed HZ	0	0.0	-		-		-		-		-		-		-	
PZ to fitted value	23	0.3	3		1		-		4		14		1		-	
AV to confirmed HZ	1	0.0	-		-		-		-		1		-		-	
AV to fitted value	14	0.2	4		-		3		2		-		3		2	
Lo to fitted value	70	1.0	9		6		12		11		13		7		12	
Hi to fitted value	44	0.6	8		4		6		1		11		5		9	
The 60% Rule	7	0.1	1		1		1		1		1		1		1	
Total figure anomalies	171		25		15		23		20		44		18		26	

Sequence anomalies

CZE	Czech Republic	3 Lo 3 Hi	-	3 Hi	-	-	-	-	1 Lo	-	-	-	1 Lo	-	1 Lo	-
FRA	France	2 Lo 3 Hi	-	-	-	2 Hi	-	1 Hi	2 Lo	-	-	-	-	-	-	-
GER	Germany	5 Lo 6 Hi	2 Lo	-	-	1 Hi	-	1 Hi	-	-	-	2 Hi	1 Lo	-	2 Lo	2 Hi
GBR	Great Britain	1 Lo 2 Hi	-	-	-	-	-	-	-	-	-	1 Hi	-	-	1 Lo	1 Hi
HUN	Hungary	1 Lo 1 Hi	-	-	-	-	1 Lo	-	-	-	-	-	-	-	-	1 Hi
RUS	Russia	7 Lo 4 Hi	-	-	2 Lo	1 Hi	-	-	-	3 Hi	-	-	3 Lo	-	2 Lo	-
SUI	Switzerland	2 Lo 1 Hi	1 Lo	-	-	-	-	-	-	-	1 Lo	-	-	1 Hi	-	-
ISR	Israel	1 Lo 0 Hi	-	-	-	-	-	-	-	-	-	-	-	-	1 Lo	-
EXP	Expain	2 Lo 1 Hi	-	-	-	-	-	-	1 Lo	-	-	-	1 Lo	-	-	1 Hi
	Total sequence anomalies	24 Lo 21 Hi	3 Lo 3 Hi		3 Lo 4 Hi		- 2 Hi		4 Lo 3 Hi		1 Lo 3 Hi		6 Lo 1 Hi		7 Lo 5 Hi	

Aerobatic Contest Results Organiser, Version 3.0 build 28-12-10
Calculations by: FairPlay (non-scoring CJ + CHZ Summary) method
This report created at 14:56 on 29 December 2010

The CIVA FairPlay System is used in the 'ACRO' contest software

On the internet go to:

https://www.acro-online.net/

You can download the **ACRO** software, and run it on your own Windows computer. You also have full access to an extensive archive of past national and international contest files.

The website includes copies of all the Pilot and Judge Analysis explanations, together with a detailed description of the complete FairPlay Statistical Analysis system.

To see ACRO's results output in action at CIVA events go to:

www.civa-results.com