



# A short guide to how the FairPlay System (FPS) works

**The purpose of the FPS process is to harmonise the judges grades for each figure, then detect and replace grades and scores that fall outside an acceptable range of variations for the whole panel.**

After each flight a Pilots Raw Marks Check Sheet from the Scoring Office shows the judges **Raw Grades** and any penalties that have been entered into the scoring system for that flight. On this sheet –

- Marks or HZ's that conflict with the Chief Judge's HZ confirmations are boxed to indicate that they will be rejected and replaced by FPS.
- On the right side of the page two extra columns provide the **average** raw mark for each figure and the **equivalent** raw score they would provide if FPS was not subsequently used.
- At the foot of this check-sheet the total of the equivalent raw scores is shown, the values of any penalties that have been awarded, and the pilots' pre-FPS **Raw Score** for the flight is estimated.

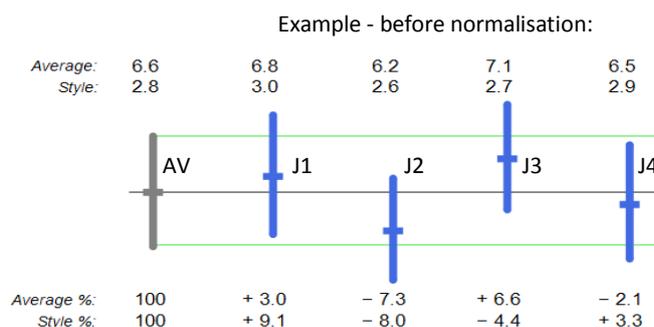
Fig No.	K	SF	J1	J2	J3	CJ	CHZ	Av'ge mark	Equiv. score
1	21	F	6.5	6.0	8.5	8.0	OK	7.3	152.3
2	21	F	4.5	2.5	3.5	9.5	OK	5.0	105.0
3	17	B	6.0	7.0	8.0	7.5	OK	7.1	121.1
4	12	E	1.0	0.0	HZ	HZ	CHZ	0.0	0.0
5	8	F	5.5	7.5	7.5	7.0	OK	6.9	55.0
6	17	F	4.5	5.5	7.0	5.0	OK	5.5	93.5
7	23	D	5.5	7.0	7.5	7.5	OK	6.9	158.1
8	17	A	7.0	6.0	8.5	6.0	OK	6.9	116.9
9	21	C	3.5	8.5	9.5	7.0	OK	7.1	149.6
10	18	F	6.5	8.5	9.5	5.0	OK	7.4	132.8
Posi	15	<sup>1</sup>	6.0	7.0	6.0	6.5		6.4	95.6
Harm	20	<sup>0</sup>	5.0	7.0	7.5	6.0		6.4	127.5

Penalties:	Qty	Value	Deduct
Too Low	-	70	0.0
Too High	-	70	0.0
Interruptions	1	70	70.0
Insertions	-	70	0.0
Missed Slot	-	300	0.0
Trg. Violation	-	200	0.0
Faulty W/rocks	-	35	0.0
Out of Box	-	2/sec	0.0
<b>Total penalties awarded:</b>			<b>70.0</b>
Max. possible score:			2100.0
Raw equiv. score total:			1307.4
Minus 70 penalty points:			1237.4
Pre-FP score estimate:			58.9%

The provisional and final **Results Reports** published by the scoring office however are always calculated using the FairPlay System to detect and resolve unusual or unacceptable marks and scores, and to eliminate the effects of judging errors and bias as far as possible.

## The steps taken by the FairPlay System when calculating the Results

1. The FP system assesses the judges' marks for all pilots in groups of one or more similar figures. In each group the judges' raw grades must first all be 'normalised' to balance their influence. In this harmonising process the average and the spread of non-zero grades for all judges is used to re-scale each judges' set of raw grades to a common basis. This is the step that changes the regular half-mark intervals to many decimal places. The process is repeated separately for each group, and a natural outcome is that identical raw marks given by different judges can after normalisation rise or fall depending on that judges' style (average and spread) of marking.



2. In each figure group a **confidence** value set at 97.5% is calculated for each normalised mark to check that it can be accepted, or is among the 2.5% that are too high or low and must be discarded. If any marks are discarded they are set to 'missing' and step-1 for the group must be run again without them. A table of 'fitted values' (FV) is now calculated to reflect the style of each judge, and these are used to replace the missing marks. After this step the FPS marks are all considered to be free of unacceptable influences.
3. When every figure and the overall items such as the Position and Harmony grades have been run through steps 1 and 2, the scores for each pilot / figure / judge can be calculated from the final marks multiplied by the figure or item K-factors. An initial results table is now created with each judges' total score for every pilot. These scores are run through another **confidence** test, this time at a more relaxed

setting of 90.0%, to determine if any are unacceptably high or low, i.e. the judges' scores are 'biased' up or down. If any unacceptable scores are detected by this test then a score replacement process similar to steps 1 and 2 but using calculated score FV's is employed to reduce the effect of the identified judging bias to within acceptable limits. This final result is considered to be free of any detectable anomaly.

4. Finally – if any penalties have been awarded they are deducted from each pilots overall score, and the **FPS Table of Results** can be assembled and published.

### The Pilots online Score-Sheet

Click a Pilot's online score before the programme is finished and the **Raw Grades** score-sheet will be displayed.

When all Pilots have flown these are replaced by the **FairPlay** processed marks sheets as shown here, on which the original **Raw Grade** and the **FPS adjusted** mark for each figure are shown one above the other. Rejected High or Low marks are identified in red, the usual two extra columns display the average mark and the equivalent score for each figure, and any penalties awarded are listed individually.

The Pilots score from each judge is shown. Again this is red if FPS has determined that it was too High or too Low, and for these judges the substituted FV score is shown below it.

The processed score total is the average of the judge's FPS scores, and after any penalties have been deducted the pilots final score and the percentage of the maximum possible will now match those shown in the printed or online published Results Report.

### The published Results Report

Until all pilots have flown in a programme the FPS Results Table will be updated each time a new set of pilots marks is entered, and the overall rankings may change to reflect the growing size and reliability of the data pool. Throughout each programme, if any pilots FPS score is less than 60% (Free-Known) or 50% (Free-Unknown) the entire calculation process is run again with those pilots temporarily extracted to ensure that the scores for the higher ranking pilots cannot be influenced by the marks that have been awarded to their lower performing colleagues.

### The Judging Analyses

Click any judge's name at the foot of a completed online single programme results page and their Judging Analysis for the sequence is shown. The judges' figure grading performance during the programme is assessed in a range of different ways, and the Ranking Index (RI) elements are all separately displayed.

The Chief Judge receives a combined analysis of all judges that provides a direct comparison of each judge's performance against the final results for the programme.

FairPlay Processed Marks Sheet								
Sophie Splendid (GEO) - Salto N12345								
Advanced - Glider : Programme 1: Free Known								
ACRO Test Contest file for 2016 at Everywhere, Throughout 2016								
Contest Director: Jack Border, Contest Chief Judge: Andrew Morrirt (GBR)								
Judges: 1 - Jeremy Sullivan (IRL), 2 - Adele Williams (AUT), 3 - Nicholas Wall (RSA), 4 - Andrew Morrirt (GBR)								
Fig No	K factor	J1	J2	J3	CJ4	CHZ	Avg marks	Equiv scores
1	21	6.5	6.0	8.5	8.0	OK	7.25	152.25
		<b>5.78</b>	<b>6.24</b>	<b>8.37</b>	<b>8.86</b>		<b>7.31</b>	<b>153.57</b>
2	21	4.5	2.5	3.5	Hi 9.5	OK	5.00	105.00
		<b>3.77</b>	<b>2.95</b>	<b>4.21</b>	<b>3.86</b>		<b>3.70</b>	<b>77.68</b>
3	17	6.0	7.0	8.0	7.5	OK	7.13	121.21
		<b>4.96</b>	<b>7.44</b>	<b>7.95</b>	<b>7.89</b>		<b>7.06</b>	<b>120.02</b>
4	12	1.0	0.0	HZ	HZ	CHZ	0.00	0.00
		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		<b>0.00</b>	<b>0.00</b>
5	8	5.5	7.5	7.5	7.0	OK	6.88	55.04
		<b>5.70</b>	<b>7.03</b>	<b>6.65</b>	<b>8.15</b>		<b>6.88</b>	<b>55.07</b>
6	17	4.5	5.5	7.0	5.0	OK	5.50	93.50
		<b>3.47</b>	<b>5.98</b>	<b>6.66</b>	<b>5.51</b>		<b>5.41</b>	<b>91.89</b>
7	23	5.5	7.0	7.5	7.5	OK	6.88	158.24
		<b>4.60</b>	<b>7.63</b>	<b>7.00</b>	<b>7.80</b>		<b>6.76</b>	<b>155.49</b>
8	17	7.0	6.0	8.5	6.0	OK	6.88	116.96
		<b>6.05</b>	<b>6.45</b>	<b>8.44</b>	<b>6.48</b>		<b>6.86</b>	<b>116.55</b>
9	21	Lo 3.5	8.5	9.5	7.0	OK	7.13	149.73
		<b>8.48</b>	<b>9.14</b>	<b>8.96</b>	<b>7.36</b>		<b>8.48</b>	<b>178.16</b>
10	18	6.5	8.5	9.5	5.0	OK	7.38	132.84
		<b>5.69</b>	<b>8.61</b>	<b>8.95</b>	<b>5.51</b>		<b>7.19</b>	<b>129.42</b>
Posi	15	6.0	7.0	6.0	6.5	OK	6.38	95.70
		<b>5.75</b>	<b>6.53</b>	<b>6.34</b>	<b>6.90</b>		<b>6.38</b>	<b>95.72</b>
Ham	20	5.0	7.0	7.5	6.0	OK	6.38	127.60
		<b>4.62</b>	<b>6.53</b>	<b>7.50</b>	<b>6.31</b>		<b>6.24</b>	<b>124.79</b>
This sequence has been completed. FairPlay scores here are FINAL								
FP anomalies (Low)								
Judge Scores		1045.24	1336.90	1472.07	1336.16			
FP substitutes		1291.82						
<b>Processed score total (2100 = max.poss)</b>							<b>1359.24</b>	
Too Low							0.0	
Too High							0.0	
Interruptions							70.0	
Insertions							0.0	
Missed Slot							0.0	
Trg. Violation							0.0	
Faulty Wirocks							0.0	
Out of Box							0.0	
Minus 70 penalties:							<b>1289.24</b>	
<b>Final score valuation</b>							<b>61.39 %</b>	
FairPlay System								ACRO Version 4.1 Build: 16/05/16