

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

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

After each flight and the Pilots Raw Marks have been entered, a Check Sheet from the Scoring Office shows the judges **Raw Grades** and any penalties that have been awarded 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 subsequently not 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.

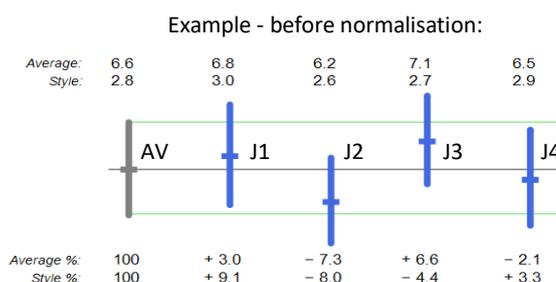
Fig No.	K	SF	J1	J2	J3	CJ	CHZ	Av'ge mark	Equiv. score
1	21	F	6.5	6.0	8.5	8.0	OK	7.3	152.3
2	21	F	4.5	2.5	3.5	9.5	OK	5.0	105.0
3	17	B	6.0	7.0	8.0	7.5	OK	7.1	121.1
4	12	E	1.0	0.0	HZ	HZ	CHZ	0.0	0.0
5	8	F	5.5	7.5	7.5	7.0	OK	6.9	55.0
6	17	F	4.5	5.5	7.0	5.0	OK	5.5	93.5
7	23	D	5.5	7.0	7.5	7.5	OK	6.9	158.1
8	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
Ham	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>
<b>Max. possible score:</b>			<b>2100.0</b>
<b>Raw equiv. score total:</b>			<b>1307.4</b>
<b>Minus 70 penalty points:</b>			<b>1237.4</b>
<b>Pre-FP score estimate:</b>			<b>58.9%</b>

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.

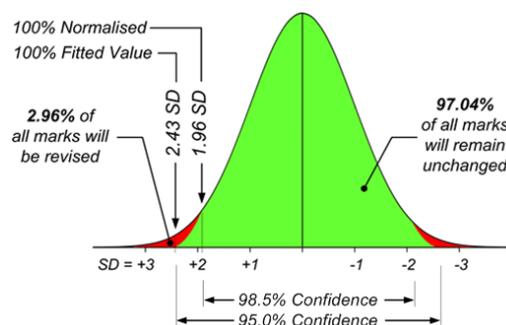
## The steps taken by the FairPlay System when calculating the Results

1. The FP system assesses the judges' marks for all pilots in groups of one or more similar figures. In each group judges' raw grades must first be 'normalised' to harmonise or balance their influence. In this process the average and the spread of non-zero grades for all judges is used to re-scale each judges' complete 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 by different amounts depending on that judges' style (average and spread) of marking.

2. Within each figure group the normalised marks are checked to ensure they fit within the central 98.5% **confidence** band. A higher or lower mark is becoming unacceptable and, using a table of 'fitted values' (FV) calculated in the style of each judge, is replaced by a new value set proportionately between the mark and the FV as the confidence reduces to 95%, at which point the FV is directly substituted. After this step the FPS marks are all considered to be free of unacceptable influences.



- When every figure and overall items such as the Position grade 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 with a more relaxed band from 78.5% to 90.0% to determine if any are unacceptably high or low, i.e. if they are 'biased' up or down. If any are found to require such adjustment then a process similar to steps 1 and 2 is employed, using a table of statistically calculated FV scores to proportionately reduce the effect of the identified judging bias to within acceptable limits. After this stage all scores are considered to be free of any unacceptable anomalies.
- Finally – if any penalties have been awarded they are deducted from each pilots overall score, and the **Results Report** can be assembled and published.

### The Pilots online Score-Sheet

Click a Pilot's online score before the programme is finished and a **Raw Grades** web score-sheet similar to that shown above will be displayed.

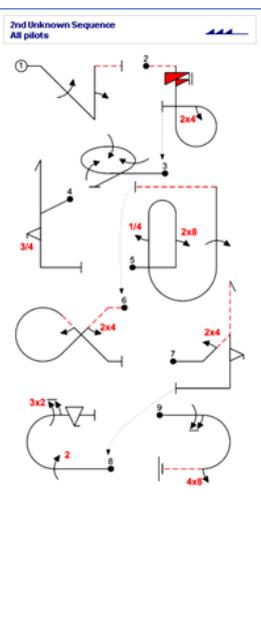
When all Pilots have flown these sheets are replaced by the **FairPlay** processed web marks-sheets on which the original **Raw Grades** and the **FPS adjusted** marks for each figure are shown one above the other. Rejected high or low marks are identified in red, the two extra columns display the average mark and the equivalent score for each figure, and any penalties that have been awarded are listed individually.

The Pilots score from each judge is also displayed. Once again this is red if FPS has determined that it was too high or too low, and for these judges the adjusted FV score is shown below it.

FairPlay Processed Marks Sheet									
David Kean - DR-107 G-IID									
Advanced - Power : 2nd Unknown Sequence									
2019 Advanced, Unlimited Nats at Sywell Aerodrome, 20-23 June 2019									
Contest Director: Alan Cassidy, Contest Chief Judge: Nick Buckenham									
Judges: 1 - Pierre Varilleaux (FRA), 2 - Laszlo Lachray (RSA), 3 - Ian Scott, 4 - Leif Culpin, 5 - Nick Buckenham									
Fig No	K factor	J1	J2	J3	J4	CJS	CHZ	Avg/2	Equip Score
1	28	7.5	8.5	8.0	9.0	9.0	OK	8.40	235.20
		8.15	8.36	8.18	8.98	8.40		8.41	235.58
2	22	6.5	7.5	8.5	8.5	8.5	OK	7.90	173.80
		7.21	7.58	8.38	8.22	7.88		7.85	172.80
3	30	5.0	5.0	6.5	6.5	4.5	OK	5.50	165.00
		5.16	5.52	6.83	6.12	3.62		5.45	163.54
4	28	7.0	8.0	Lo PZ	8.0	Lo PZ	OK	4.60	128.80
		7.55	7.95	8.15	7.83	7.67		7.83	219.28
5	39	7.5	8.0	8.5	8.5	8.0	OK	7.70	300.30
		8.20	7.68	9.24	8.15	6.12		7.88	307.21
6	24	7.5	7.5	7.5	8.5	8.5	OK	7.90	189.60
		8.18	7.58	7.58	8.22	7.88		7.89	189.35
7	42	7.5	7.5	8.0	8.0	7.0	OK	7.60	319.20
		8.20	7.36	8.49	7.56	7.02		7.72	324.38
8	38	7.0	7.0	7.0	8.5	8.0	OK	7.50	285.00
		7.60	7.03	6.98	8.15	7.91		7.54	286.36
9	23	7.0	8.0	7.0	7.5	AVG	OK	7.38	169.63
		7.70	8.26	7.18	7.20	7.59		7.59	174.48
Final	30	7.0	8.5	6.0	8.0	8.5	OK	7.60	228.00
		7.60	8.00	5.48	7.56	8.36		7.40	222.02

This sequence has been completed. FairPlay scores here are FINAL.	
Judge Scores	2192.98 2322.68 2303.56 2428.10 2243.25
Processed score total (3040 = max.poss)	2298.11
Top Low	0.0
Top High	0.0
Blat Out	0.0
Interruptions	0.0
Insertions	0.0
Missed Slot	0.0
Trig Violation	0.0
Other Penalty	0.0
No penalties to deduct	
Final score valuation	75.60 %
FairPlay System explanations	
ACRO Version 4.4 Build 03/09/20	



The **processed score total** is the average of the judge's FPS scores. 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

While pilots' marks-sheet data is being entered for a programme, each re-calculation of the FPS Results table can reveal occasional variations in the pilot rankings that are a direct reflection of the growing size and reliability of the data pool. When marks entry for all pilots in the programme is complete the final FPS Results table will present a balanced outcome that is free of unacceptable anomalies and judging bias.

### The Judging Analyses

Click any judges' 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.