

SPAH COMB TEST REPORT

On Wednesday 18th August, at SPAH 2010, a test was conducted to gain the impressions of six test players to different comb materials in a 10 hole diatonic harmonica. The same reedplates and covers were used throughout, and only the comb material substituted in ten tests. Various measures were taken to disguise the comb material for each test (as documented on other sheets on this webpage).

The results show that two testers gave uniform scores for every comb throughout the test, from beginning to end. It would suggest they had decided this course from the start, but this has been refuted. A third tester adopted the same strategy shortly after, apparently persuaded to do so.

A reason given by one tester who marked uniform scores is that "...The only perceived difference seemed to be in airtightness and responsiveness of the reeds as a result of differences in screw tolerances and comb flatness between each comb switch... the tests in the end were very inconclusive due to large variances other than the comb materials".

That's a serious point, as it strikes at the very validity of the test. However, in reply:

1. It can be heard from the sound clips that the harp was in reasonable playable condition for every test, with every comb. All combs were tested for flatness. While the assembly may not have been perfectly airtight to the level of an expensive custom harp, given the need for quick changes between tests we felt it played sufficiently well for the purposes of this experiment (akin to a stock traditional Marine Band, our benchmark). You can make your own judgement by listening to the sound clips.
2. It can be seen from the score sheets that Vern retained the brass comb four times in a row, and he has stated that he did not adjust the screws at all. So for those four tests there could not have been any such 'variances' or 'differences' as claimed, because nothing changed.
3. Every player had the chance to try the harp/comb assembly in the half-hour before the test. If any felt at that point that it was so inadequate as to make the entire test invalid, surely that was the time to make their opinions known and withdraw - rather than sitting there for two hours of everyone's time giving the same score for every comb? The job could have been passed to someone else.

Whatever... the end result is that three of the test players marked clear differences between the tests and three gave everything uniform scores. I accept that ALL scores were made honestly and sincerely.

However it's pointless to include the uniform scores in this survey because they add nothing useful to the statistical analysis (eg. a score of "3" in every box for every comb makes no difference). So here are the scores from the three testers who did perceive different sounds between the comb materials:

PLAYER 6

	A	B	C	D	E	F	G	H	
1	Comb	Bright	Thick	Loud	Balanced	Pleasing	Material	Total	
2	1	4	2	4	4	3	Bamboo	17	
3	2	4	3	4	4	4	Brass	19	
4	3	5	2	4	3	2	Brass	16	
5	4	4	3	3	3	3	Brass	16	
6	5	4	3	4	4	3	Brass	18	
7	6	4	4	4	4	5	Pear	21	
8	7	4	3	4	4	4	Corian	19	
9	8	2	3	3	4	3	Dymondwood	15	
10	9	3	4	3	4	2	Aluminum	16	
11	10	3	3	3	3	3	Red Plastic	15	
12									
13	Ratings by player			PLAYER 6					

PLAYER 5

	B	C	D	E	F	G	H	I
1	Comb	Bright	Thick	Loud	Balanced	Pleasing	Material	Totals
2	1	3	2	3	3	3	Bamboo	14
3	2	3	4	2	3	3	Brass	15
4	3	2	2	2	2	2	Brass	10
5	4	3	3	3	2	3	Brass	14
6	5	4	3	3	3	4	Brass	17
7	6	4	4	3	4	4	Pear	19
8	7	3	4	3	3	3	Corian	16
9	8	4	2	4	3	2	Dymondwood	15
10	9	5	3	4	3	3	Aluminum	18
11	10	4	3	3	3	3	Red Plastic	16
12								
13	Ratings by player			PLAYER 5				

PLAYER 3

	A	B	C	D	E	F	G	H
1	Comb	Bright	Thick	Loud	Balanced	Pleasing	Material	Total
2	1	4	3	4	3	3	Bamboo	17
3	2	3	2	2	3	2	Brass	12
4	3	4	3	4	3	4	Brass	18
5	4	4	3	4	4	4	Brass	19
6	5	3	3	4	3	3	Brass	16
7	6	2	2	2	2	1	Pear	9
8	7	3	3	4	3	3	Corian	16
9	8	2	2	3	2	2	Dymondwood	11
10	9	4	3	4	4	4	Aluminum	19
11	10	3	3	3	3	3	Red Plastic	15
12								
13	Ratings by player			PLAYER 3				

Vern and I did our best to look into an interesting and contentious issue. Whether our procedure was good enough is for others to judge, but hopefully we have made a useful contribution to the debate.

If you want to judge the sounds of the harp with various combs for yourselves, check out the playing clips from all six players, as well as the test tones, along with the spectrograph data. It will be interesting to hear what opinions come from those who listen online.

Brendan