



LIGO Laboratory / LIGO Scientific Collaboration

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ADVANCED LIGO

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Mode Cleaner Controls Prototype Blade Length
Measurements with Deflection & Thickness Measurements
Embedded as an Excel file

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Distribution of this document:
LIGO Science Collaboration

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Companion Document: - **T030107-00**

Embedded File: - "Bladedeftest.xls"

Revision: - **01 Includes Embedded Excel file, "bladedeftest.xls"**

1.1 Summary of experiment

2 sets of cantilever blades from 2 different manufacturers were compared. The length, B and height, A was measured, as shown in figure 1 below. The length was measured by clamping one end of the blade and loading the other end with the desired mass measured each blade. All of the measurements were carried out on a Granite Table.

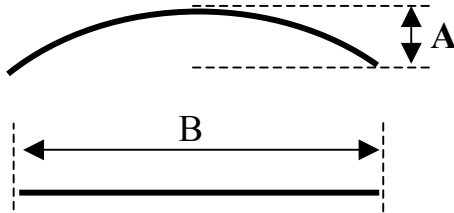


Figure: 1 Sketch showing the length, B and the height, A.

1.2 Results

Blade #	MEASURED		SPECIFICATION		Distance wire breaks		
	A (inches)	B (inches)	Overall Length (inches)	B (mm)	Overall Length (mm)	off the end of the blade (mm)	Clamping Distance (inches)
MODE CLEANER UPPER BLADES, D020201-01							
4S	1.807	10.599	10.58	269.21	268.73	3.0	0.79
5L	1.749	10.569	10.58	268.45	268.73	3.0	0.79
8S	1.823	10.595	10.58	269.11	268.73	3.0	0.79
1L	1.72	10.562	10.58	268.27	268.73	3.0	0.79
MODE CLEANER LOWER BLADES, D020205-01							
6L	0.543	5.087	5.10	129.21	129.54	1.5	0.39
5S	0.556	5.097	5.10	129.46	129.54	1.5	0.39
15S	0.589	5.098	5.10	129.49	129.54	1.5	0.39
16L	0.558	5.088	5.10	129.24	129.54	1.5	0.39

KEY: - LOBART: - L and SUPERIOR JIG: - S

1.3 Conclusions

It can be seen in the results section that the two sets of Superior Jig cantilever blades are very well matched.

1.4 Appendix

Also included in this report is a copy of the Excel sheets that were used to store the information measured by Mike Plissi and Calum Torrie on both sets of blades. This included the unloaded deflection, loaded deflection and thickness measurements.

The file is embedded as an .xls file called “bladefstestMVP.xls” and can be opened by going to File / Document Properties / Embedded Data Objects /.

Mike Plissi summarizes the work done in this Excel sheet in **T030107**.