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Output Mode Cleaner As-Built Description

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1 Introduction

This note is intended to document the as-built configuration of the output mode cleaners (OMCs) installed at LLO and LHO.

2 LLO Output Mode Cleaner

The figure and accompanying table below show the layout and serial numbers of the blades and OSEMs for the as-built output mode cleaner at the Hanford Observatory.

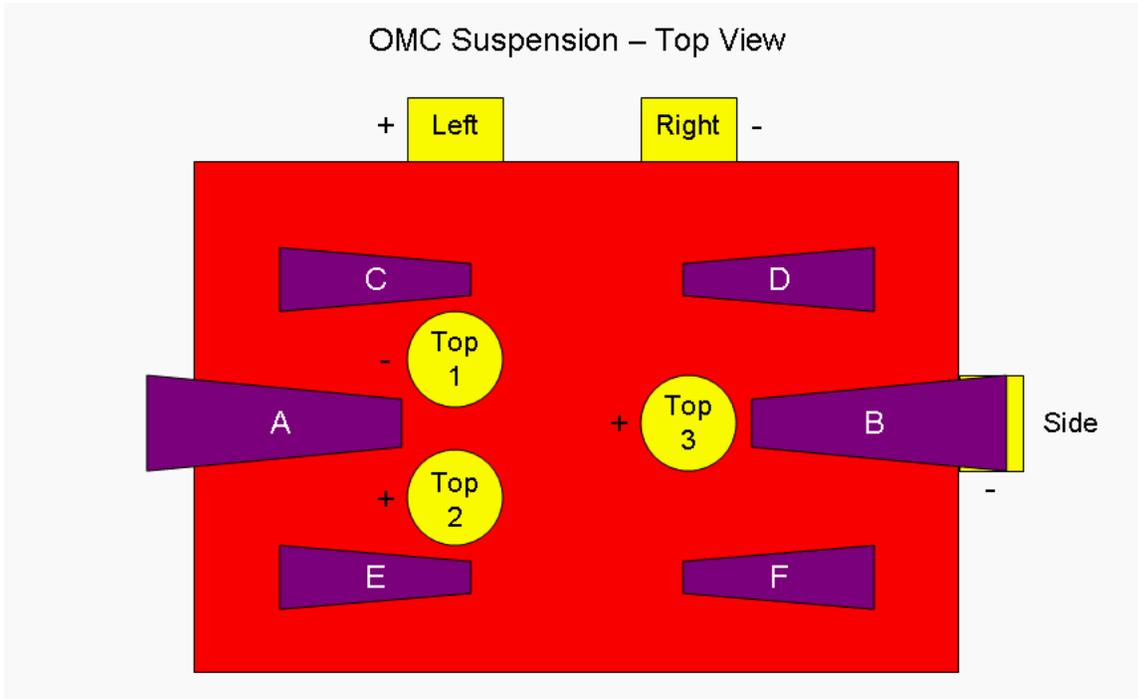


Figure 1: OMC Blade and OSEM Layout

Table 1: LLO OMC Blade and OSEM Part and Serial Numbers

Blade	Part/Serial Number		OSEM	Part/Serial Number
A	D020205-A S/N 1L 3.5 deg		Top 1	D060108-B S/N 013 or 009?
B	D020205-A S/N 2L 3.5 deg		Top 2	D060108-B S/N 010
C	D020201-A S/N 13 or 3L 2.5 deg		Top 3	D060108-B S/N 012 or 015
D	D020201-A S/N 10S 3 deg		Left	D060108-B S/N 008
E	D020201-A S/N ? 3.5 deg		Right	D060108-B S/N 006
F	D020201-A S/N 0 or 3 3 deg		Side	D060108-B S/N 011

The upper blade clamps are part numbers D020690 (upper side) and D030466 (lower side), which have a 3.5 degree angle. The lower blade clamps are part numbers **X** (upper side) and D020336 (lower side) (2.5 degree angle), **X** (upper side) and **X** (lower side) (3 degree angle), and **X** (upper side) and **X** (lower side) (3.5 degree angle).

The upper wire length is 249.95 mm and the lower wire length is 246.2 mm.

Additional masses totaled **X** grams on the upper mass and **X** grams on the fused silica bench.
Description of placement of masses – pictures?

3 LHO Output Mode Cleaner

Figure 1 above and accompanying table below show the layout and serial numbers of the blades and OSEMs for the as-built output mode cleaner at the Hanford Observatory.

Table 2: LHO OMC Blade and OSEM Part and Serial Numbers

Blade	Part/Serial Number		OSEM	Part/Serial Number
A	D080018-A S/N 2		Top 1	D060108-B S/N 040
B	D080018-A S/N 4		Top 2	D060108-B S/N 041
C	D080019-A S/N 004		Top 3	D060108-B S/N 042
D	D080019-A S/N 007		Left	D060108-B S/N 043
E	D080019-A S/N 002		Right	D060108-B S/N 044
F	D080019-A S/N 003		Side	D060108-B S/N 045

The upper blade clamps are part numbers D020312 (upper side) and D030463 (lower side), which have a 2.0 degree angle. The lower blade clamps are part numbers D070031 (upper side) and D020308 (lower side), which have a 0.0 degree angle, except for blade number 7 (labeled D in Figure 1) which are part numbers D020337 and D020333 (lower side), which have a 0.5 degree angle.

The upper wire length is 249.6 mm and the lower wire length is 251.8 mm.

Additional masses totaled 0 grams (no additional mass) on the upper mass and **X** grams on the fused silica bench. **X (more)** grams was placed on the same corner as blade D and **X (less)** grams was placed on the same corner as blade F (see Figures 2 and 3).



Figure 2: Illustration of Additional Mass on Glass Bench



Figure 3: Installation Picture Showing Orientation of Additional Mass

4 Part Differences Between the LLO and LHO OMCs

The two output mode cleaner suspensions have some differences in the parts used in their construction. Table 3 below outlines these differences:

Table 3: Differences Between LLO and LHO OMCs

Part Number	Part Name	Description of Differences
D060296	Structural Weldment	LLO version made using Rev A, LHO version using Rev B. Majority of changes related to making the structure easier to weld and limiting the amount of warping caused by the welding process.

D070147	Top Blade Guard Riser	LHO version includes helicoils to facilitate repeated assembly/disassembly.
D020205/D080018	Upper Blades	LLO version has D020205 blades (spares from the iLIGO IMC); LHO version has D080018 blades, designed for the OMC.
D020201/D080019	Lower Blades	LLO version has D020201 blades (spares from the iLIGO IMC); LHO version has D080019 blades, designed for the OMC.
D030449	Rotational Adjuster Push Plate	Part drawings call out 300-series stainless steel. LLO version is, or may be, made from 303 stainless steel, which has been deemed not UHV-compatible by L080044-v1. LHO version is made from non-303 stainless steel.
D030450	Rotational Adjuster Pull Plate	
D030459	Upper Blade Clamp, Lower Side, 0.0 Degree	
D020116	Upper Blade Clamp, Upper Side, 0.0 Degree	
D070022	Upper Blade Wire Clamp	
D020680	Upper Blade Clamp Lower Side Shim	
D030042	Upper Blade Wire Clamp Plate	
D020309	Upper Mass Wire Clamp Plate	
D020139	Upper Mass Wire Clamp Plate	
D060491	Upper Mass Main Section	
D060503	Upper Mass Pitch Insert	
D070031	Lower Blade Wire Clamp	
D020133	Lower Blade Wire Clamp Plate	