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Date:	February 19, 2009	Refer to:	M1000051-v1
Subject:	Tracking Serial Numbers		
To:	All Advanced LIGO Staff		
From:	Dennis Coyne (Engineering), Mick Flanigan (QA)		

All LIGO parts and assemblies must have serial numbers (in accordance with sections 3.2 and 3.12.4 of E010613-02 and sections 3.1.5, 3.2.12 and 3.3.5 of LIGO-E030350-v2).

In addition to marking serial numbers on parts, serial numbers must be tracked as follows:

1) All serial numbers are entered into the inventory control system upon receipt and incoming inspection/acceptance. *[So that we know what we have received.]*
2) All serial numbers of parts intended for LIGO Vacuum service are tracked through the vacuum preparation processing (cleaning and baking), whether this work is done in-house or by subcontract. *[So that we know which parts have been prepared for vacuum service.]*
3) All serial numbers of electronics (at the board level and above) are tracked through assembly and installation. *[So that we know where specific boards are located (interferometer, building, rack) because their performance characteristics (gain, noise floor, etc.) can vary form unit to unit and because they are likely to have component changes and revisions.]*
4) All serial numbers of instruments are tracked through assembly and installation *[because their performance characteristics (calibration, noise floor, etc.) can vary form unit to unit]*
5) All serial numbers of springs and flexures are tracked through assembly and installation *[because their spring rates and heat treatment history can be different]*
6) All serial numbers (or more likely batch/order numbers) of mechanical wires are tracked through assembly and installation *[by batch/order number, because their strength and diameter can vary with batch/spool]*
7) All serial numbers of optics (small and large, including viewports) are tracked through assembly and installation *[because the larger optics have characterization measurements (surface error, wedge angle, absorption, etc.) and all optics have radius of curvature/flatness and coating prescriptions and some have measurements]*
8) All serial numbers of accepted discrepant parts *[because even though accepted, these discrepancies can be important in limiting the application of the part or can help to explain problems/issues that arise later]*
9) All serial numbers of “major items” of an assembly, or items that the subsystem cognoscenti think may have value in tracking

It is the responsibility of the subsystem leaders to ensure that the assembly procedures are written to capture the required serial number tracking and that the characterization data are captured with reference to the serial numbers. It should also be noted that in the event that

parts are re-ordered, the purchase order must stipulate that the serial numbering start at a number higher than the maximum serial number from the previous order (or some other method is used to designate unique serial numbers such as a leading prefix).