



Procedure to Move BS SUS from Container to BSC ISI on Mechanical Test Stand

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1 Scope

This document details the steps involved with opening the Beamsplitter (BS) Storage Container, D1003006, currently sitting in the LVEA, moving the BS Suspension (SUS), D100392, from the container, over onto the BSC ISI located on the mechanical test stand, in the clean room adjacent to the LLO BSC2 chamber.

2 Related Documents

- LIGO-D0900428: [AdvLIGO Systems, BSC2-L1 Top Level Chamber Assembly](#)
- LIGO-D0900431: [AdvLIGO SUS BSC2-L1, XYZ Local CS for BS HR](#)
- LIGO-D1200103-v2: [aLIGO, SUS, OPTIC TABLE .38-16 BSC2-L1/BSC4-H2 FIDUCIAL KIT](#)
- LIGO-D1003007: [aLIGO, SUS, BS STRUCTURE STORAGE CONTAINER WELDMENT](#)
- LIGO-D1003008-v2: [aLIGO, SUS, BS STRUCTURE STORAGE CONTAINER FRONT PANEL](#)
- LIGO-D1003006-v2: [aLIGO, SUS, BS STRUCTURE STORAGE CONTAINER](#)
- LIGO-D080642-v1: [BS LS Tooling Lower Structure](#)
- LIGO-D1003005-v1: [aLIGO, SUS, BS STRUCTURE SUPPORT PLATE](#)
- LIGO-D1003004-v1: [aLIGO, SUS, BS STRUCTURE LIFTING BRACKET](#)
- LIGO-D1100799: [aLIGO, SUS, FM/BS STRUCTURE LIFTING BAR](#)
- LIGO-D1100802: [aLIGO, SUS, FM/BS STRUCTURE LIFTING BAR ASSEMBLY](#)
- LIGO-D1100800: [aLIGO, SUS, FM/BS STRUCTURE LIFTING BAR SUPPORT](#)
- LIGO-E0900163: [Beamsplitter/Folding Mirror Suspension Assembly Hazard Analysis](#)
- LIGO-E1100520: [Genie Lift Manual](#)

3 Moving Procedure

1. Remove door, D1003008, to storage container weldment, D1003007. This door is heavy – it weighs 59 lbs., so 2 – 3 people will be needed. It should be laid flat on a covered pallet. Prior to moving it, make sure that the path to the pallet is unobstructed.
2. Attach modified lifting brackets, D1100799-v3, to BS Shear Plates, D080503, using Lifting Bar Supports, D1100800. [Note that the BS should be moved into the container with the



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D1003004, Lifting Brackets, but these have not been fabricated.] The D1100799 Lifting Bars were modified to work with the Genie.

3. Attach the BS fiducials (see [D1200103](#)) and cookie cutters (see [D1101050](#)) to the optical table of the BSC ISI. Kit the dog clamps (see <https://dcc.ligo.org/cgi-bin/private/DocDB/ShowDocument?docid=1273D0900431>) and fasteners for the BS suspension.
4. Note: All information concerning the BSC2-L1 installation may be found on the BSC2-L1 DCC card: [D0900428](#) (and its subfolders) AdvLIGO Systems, BSC2-L1 Top Level Chamber Assembly. Specifically, the document that details the positioning information for the beamsplitter onto the ISI is [D0900431](#), AdvLIGO SUS BSC2-L1, XYZ Local CS for BS HR.
5. Read Genie Lift User Manual prior to using the Genie Lift. It can be found via [LIGO-E1100520-v2](#) or directly at <http://manuals.gogenielift.com/Operators/English/97550.pdf> In particular, note that there is a 1000 lb limit of the Genie at 24" load center to a maximum height of 11 ft. Review load center zone, on page 17 of manual. Note that nothing shall be stored on the Genie, only moved from point A to point B.
6. Roll Genie Lift into place, ready to move and lift the BS suspension out of the container. At this time, take care that the forks for the Genie are the ones that do not require shims (which are not the modified forks) to level the load.
7. Lift the beamsplitter suspension by the lifting bars and back it out of the container.
8. Cover the BS suspension with a C3 cover.
9. Roll it over to the mechanical test stand, under the clean room. Remove the C3 cover. The time outside of the container should be no more than 10 minutes. Check to determine if a gusset will need to be removed from the mechanical test stand to allow clearance for the suspension.
10. Roughly position the Genie lift with the BS suspension on it, under the ISI, such that the suspension upper structure will align with the cookie cutters. Slowly, raise the suspension on the Genie and line it up within the cookie cutters. Use the specified dog clamps and fasteners, in the correct positions, [per D0900431](#), to the required torque (see Sheet 1 of [D0900431](#)), to attach the SUS to the ISI.
11. Remove the D1100799 Lifting Brackets and the D1100800 Lifting Bar Supports and store for future use.
12. Reference: picture of BS as it was being put in container:



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BS LIFTING BAR,
D1100799

BS BAR SUPPORT,
D1100800

GENIE LIFT

BS SUS, D1000392

BS LSAT, D080642

