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| Traveler Title | LCLS-II HE SPQA Magnet Current Lead Flange Assembly Inspection Traveler |
| Traveler Abstract | This traveler covers the necessary steps to perform incoming inspection and acceptance tests of LCLS-II HE SPQA magnet current lead flange assembly at JLab. This item is a Fermilab procurement and drop-shipped to JLab. |
| Traveler ID | L2HE INSP-CFL |
| Traveler Revision  | R1 |
| Traveler Author | Seetha-Lakshmi Lalitha |
| Traveler Date | 29-Mar-21 |
| NCR Informative Emails | kwilson,Hogan |
| NCR Dispositioners | lalitha,king |
| D3 Emails | lalitha,king,fisher |
| Approval Names | Seetha-Lakshmi Lalitha | Larry King | Michael Morrone | John Hogan |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author, SOTR | Reviewer | Reviewer | Project Manager |

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| References | List and Hyperlink all documents related to this traveler. This includes, but is not limited to: safety (THAs, SOPs, etc), drawings, procedures, and facility related documents. |
|  | [F10022642-Rev G.pdf](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-241390/F10022642-Rev%20G.pdf.pdf) | F10046761-Rev A.pdf | F10046899.pdf |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| **Notes**1. *The current lead flange assembly is fabricated according to the FNAL drawing, #F10022642-Rev G.*
2. *The assembly contains delicate components. Wear nitrile gloves while handling and follow extreme care.*
3. *Protect the ceramic feedthroughs and feed through flags from damage.*
4. *Protect the knife edge sealing surface of the flange from scratches.*
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| **Figure 1: Top view (left panel) and bottom view (right panel) of the SPQA magnet current lead flange assembly (3D CAD model #F10022642).** |
| **Step No.** | **Instructions** | **Data Input** |
|  | **Create inventory** |  |
|  | * 1. Inventory preparer name.
 | [[Insp\_Name\_SRF]] <<SRF>> |
|  | * 1. Received date of the shipment.
 | [[RecDate]] <<TIMESTAMP>> |
|  | * 1. Manufacturer.
 | [[Manufacturer]] <<TEXT>> |
|  | * 1. Assembly drawing number.
 | [[Assembly Drawing Number]] <<TEXT>> |
|  | * 1. Assign the serial number of the current lead flange assembly

*Note: labeling format F10022642-G-NNNN where the last four digits indicate the serial number starting from 0001.* | [[CFLSN]] <<CFLSN>> |
|  | * 1. Mark the corresponding serial number on the outer side of the CF flange.
 | [[Mark\_SN]] <<YESNO>> |
|  | * 1. Add comments, if any.
 | [[Comment1]] <<COMMENT>> |
|  | * 1. The date of completion of the inventory.
 | [[CompDate]] <<TIMESTAMP>> |

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|  | **EBOM inspection** |   |
|  | Note; Refer to Figure 1 and Table 1 of this document and attached CAD drawings for the details. |  |
|  | * 1. Inspector name and date.
 | [[EBOM\_Insp\_Name]] <<SRF>>[[EBOM\_Insp\_Date]] <<TIMESTAMP>> |
|  | * 1. Are all components listed in the Table.1 present in the assembly?

  | [[EBOM\_Tally]] <<YESNO>>[[EBOM\_Comment]] <<COMMENT>> |
|  | * 1. Note non-conformances, if any. Provide a short description and upload pictures.
 | [[[Vis\_NCR]] <<YESNO>>[[EBOM\_NCR\_Comment]] <<COMMENT>>[[EBOM\_Photos]] <<FILEUPLOAD>> |
|  | * 1. Date of completion of EBOM inspection.
 | [[EBOM\_COMP\_Date]] <<TIMESTAMP>> |
|  | **Visual inspection** |  |
|  | * 1. Inspector name and date.
 | [[Insp\_Name3]] <<SRF>>[[Date5]] <<TIMESTAMP>> |
|  | * 1. Are all components of the assembly free of dirt, grease, oil, or chip?
 | [[Vis\_Pass\_1]] <<YESNO>>[[Vis\_Pass\_1\_Comment]] <<COMMENT>> |
|  | * 1. Are all parts free of sharp edges, corners, and burrs?
 | [[Vis\_Pass\_2]] <<YESNO>>[[Vis\_Pass\_2\_Comment]] <<COMMENT>> |
|  | * 1. Are the sealing surface of the flange and knife edges free of scratches?
 | [[Vis\_Pass\_3]] <<YESNO>>[[Vis\_Pass\_3\_Comment]] <<COMMENT>> |
|  | * 1. Check for the signs of damage on weldments on the assembly. Refer to the drawings for the current lead flange weldment (drawing no: F10046761-Rev A), feedthrough flag weldment (drawing no: F10046899) for details.
 | [[Vis\_Pass\_4]] <<YESNO>>[[Vis\_Pass\_4\_Comment]] <<COMMENT>> |
|  | * 1. Are feedthrough flags held firmly in place by G-10 inner and outer separators?
 | [[Vis\_Pass\_5]] <<YESNO>>[[Vis\_Pass\_5\_Comment]] <<COMMENT>> |
|  | * 1. Are vaccum-side of all feedthrough pins straight?
 | [[Vis\_Pass\_6]] <<YESNO>>[[Vis\_Pass\_6\_Comment]] <<COMMENT>> |
|  | * 1. Check the quality of brazing (solder quantity and appearance of the joint) between the feedthrough pins and copper lugs on the bottom surface of the flange.
 | [[Vis\_Pass\_7]] <<YESNO>>[[Vis\_Pass\_7\_Comment]] <<COMMENT>> |
|  | * 1. Does the lead wire length match the specification in drawing #F10022642-Rev G?
 | [[Vis\_Pass\_8]] <<YESNO>>[[Vis\_Pass\_8\_Comment]] <<COMMENT>> |
|  | * 1. Check the quality of the crimped cable and report the signs of defects or damage, if any.
 | [[Vis\_Pass\_9]] <<YESNO>>[[Vis\_Pass\_9\_Comment]] <<COMMENT>> |
|  | * 1. Note non-conformance if any from the visual inspection. Leave comments and upload photos.
 | [[Vis\_insp\_NCR]] <<YESNO>>[[Vis\_Insp\_Comment]] <<COMMENT>> [[Vis\_Insp\_photos]] <<FILEUPLOAD>> |
|  | * 1. Date of completion of visual inspection.
 | [[Date6]] <<TIMESTAMP>> |
|  | **Electrical inspection**  |  |
|  | * 1. Electrical technician and date.
 | [[Elect\_Insp\_Name]] <<SRF>>[[Elect\_Insp\_Date]] <<TIMESTAMP>> |
|  | * 1. Measure isolation of each feedthrough pin to the body with a hand-held DMM ( qualification criterion: Resistance >= 60 MΩ.)
 | [[Pin1\_Iso\_R]] <<FLOAT>>[[Pin2\_Iso\_R]] <<FLOAT>>[[Pin3\_Iso\_R]] <<FLOAT>>[[Pin4\_Iso\_R]] <<FLOAT>>[[Pin5\_Iso\_R]] <<FLOAT>>[[Pin6\_Iso\_R]] <<FLOAT>>[[Pin1\_Iso\_R\_Pass]] <<YESNO>>[[Pin2\_Iso\_R\_Pass]] <<YESNO>>[[Pin3\_Iso\_R\_Pass]] <<YESNO>>[[Pin4\_Iso\_R\_Pass]] <<YESNO>>[[Pin5\_Iso\_R\_Pass]] <<YESNO>>[[Pin6\_Iso\_R\_Pass]] <<YESNO>> |
|  | * 1. Measure continuity of each feedthrough pin at the bottom of the flange to feedthrough flag surface using a hand-held DMM (qualification criterion: Resistance <= 2Ω.).

Note: The lug current lead connect is soldered onto the feedthrough pin at the bottom (the vacuum side) of the CF flange. | [[Pin1\_CT\_R]] <<FLOAT>>[[Pin2\_CT\_R]] <<FLOAT>>[[Pin3\_CT\_R]] <<FLOAT>>[[Pin4\_CT\_R]] <<FLOAT>>[[Pin5\_CT\_R]] <<FLOAT>>[[Pin6\_CT\_R]] <<FLOAT>>[[Pin1\_CT\_R\_Pass]] <<YESNO>>[[Pin2\_CT\_R\_Pass]] <<YESNO>>[[Pin3\_CT\_R\_Pass]] <<YESNO>>[[Pin4\_CT\_R\_Pass]] <<YESNO>>[[Pin5\_CT\_R\_Pass]] <<YESNO>>[[Pin6\_CT\_R\_Pass]] <<YESNO>> |
|  | * 1. Report non-conformance, if any.
 | [[Elect\_NCR]] <<YESNO>>[[Elect\_NCR]] <<FILEUPLOAD>>[[Elect\_Insp\_Comment]] <<COMMENT>> |
|  | * 1. Date of completion of the electrical inspection.
 | [[Elec\_Comp\_Date]] <<TIMESTAMP>> |
|  | **Vacuum leak**  |  |
|  | * 1. Inspector name and date.
 | [[Inp\_Name5]] <<SRF>>[[Date9]] <<TIMESTAMP>> |
|  | * 1. Perform the vacuum leak according to the specifications on drawing #F10022642-Rev G. The specifications are:
		1. No leak shall be detectable on the most sensitive scale of a helium leak detector with a minimum sensitivity of 2 x10-9 mbar x L / sec.
		2. The vacuum level during the leak check shall be less than 1 x 10-4 Torr.
 | [[LkChkFile]] <<FILEUPLOAD>>[[LkChkVacLevel]] <<FLOAT>> Torr[[LeakChkGood]] <<YESNO>>[[LkChkComment]] <<COMMENT>> |
|  | * 1. Date of completion of the inspection.
 | [[Date10]] <<TIMESTAMP>> |
|  | Re-pack the current lead flange assembly. Send to inventory area until use. | [[Inp\_Name6]] <<SRF>>[[Date11]] <<TIMESTAMP>> |
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