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| Traveler Title | Receiving Inspection of C75 Cryomodule Cavity Magnetic Shield Assembly |
| Traveler Abstract | This traveler is for inspection of C75 Cryomodule Cavity Magnetic Shield Assembly.  |
| Traveler ID | ER5C-INSP-IMAG |
| Traveler Revision  | R2 |
| Traveler Author | Gary Cheng |
| Traveler Date | 12-June-2023 |
| NCR Informative Emails | areilly,edaly,mcewen,georged |
| NCR Dispositioners | Cheng,fischer |
| D3 Emails | Cheng,fischer,edaly,areilly,mcewen,georged |
| Approval Names | Gary Cheng | George DeKerlegand | John Fischer | Tony Reilly |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | 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. |
| [SRF C75-C50 CRYOUNIT HELIUM VESSEL C75-C50 MU TUNER SHELD ASSEMBLY](https://misportal.jlab.org/jlabDocs/documents/96668/download) | [SRF C75/C50 CAVITY MAGNETIC SHIELD END PANEL 4](https://misportal.jlab.org/jlabDocs/documents/95972/download) | [SRF C75/C50 CAVITY MAGNETIC SHIELD SIDE PANEL 1](https://misportal.jlab.org/jlabDocs/documents/95967/download) | [SRF C75/C50 CAVITY MAGNETIC SHIELD END PANEL 3](https://misportal.jlab.org/jlabDocs/documents/95971/download) | [SRF C75 CAVITY MAGNETIC SHIELD END PANEL 1.2](https://misportal.jlab.org/jlabDocs/documents/95969/download) |
| [SRF C75/C50 CAVITY MAGENTIC SHIELD END PANEL 2.2](https://misportal.jlab.org/jlabDocs/documents/95970/download) | [SRF C75/C50 CAVITY MAGNETIC SHIELD SIDE PANEL 2](https://misportal.jlab.org/jlabDocs/documents/95968/download) | [SRF C75 CAVITY MAGNETIC SHIELD END PANEL 2.1](https://misportal.jlab.org/jlabDocs/documents/97736/download) | [SRF C75/C50 CAVITY MAGNETIC SHIELD END PANEL 1.1](https://misportal.jlab.org/jlabDocs/documents/97737/download) | [SRF C75 CRYOMODULE CAVITY MAGNETIC SHIELD FPC EXTENSION ROUND](https://misportal.jlab.org/jlabDocs/documents/156502/download) |
| [SRF C75 CRYOMODULE CAVITY MAGNETIC SHIELD HOM SIDE EXTENSION 1](https://misportal.jlab.org/jlabDocs/documents/103451/download) | [SRF C75 CRYOMODULE CAVITY MAGNETIC SHIELD HOM SIDE EXTENSION 2](https://misportal.jlab.org/jlabDocs/documents/103453/download) | [SRF C75 CRYOMODULE CAVITY MAGNETIC SHIELD HOM SIDE EXTENSION 3](https://misportal.jlab.org/jlabDocs/documents/103452/download) | [On-axis field measurement data log](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-174021/Data%20log%20template.xlsx)  |  |

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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Changed drawing set to Rev C. Revised Step 3 Item 1 description and Item 9 drawing number and description |

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| Step No. | Instructions | Data Input |
| 1 | **Check Vendor Documents**Enter inspector name and inspection date. Check these documents to see if the following required documents are received or not. Material certifications.Inspection report.Make a comment if any documents are missing.  | [[Check\_Docs\_Tech]] <<SRF>>[[Check\_Docs\_Date]] <<TIMESTAMP>>[[MAG\_Docs\_Complete]] <<YESNO>>[[Docs\_Notes]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 2 | **Visual Inspection**Enter inspector name and inspection date. Enter the serial number of Cavity Magnetic Shield Assembly (CMAG) being inspected.Remove packaging materials. Check the shield parts for apparent damages. If any parts have damages:1. Describe damages in comment field.
2. Take pictures of the damages and attach files.

For this entire traveler, if any of the inspection items in this traveler are not as they should be, please generate a NCR, based on the inspector’s judgment. **NOTE: for all inspection steps, if more drawings than provided are needed, please contact the SOTR.**  | [[Visual\_INSP\_Tech]] <<SRF>>[[Visual\_INSP\_Date]] <<TIMESTAMP>>[[CMAG\_ID]] <<SN>>[[Damage\_Pics]] <<FILEUPLOAD>>[[Comment\_AsReceived\_MAG]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 3 | **Check quantity & geometry conformance of items:**Enter inspector name and inspection date.Verify the quantity and geometry conformance if parts are accessible (no need to measure dimensions) against the views of relevant drawings of the following items of JL0042398:Item 1: JL0042366, End Panel 4, quantity = 1Item 2: JL0042371, Side Panel 1, quantity = 1Item 3: JL0042363, End Panel 3, quantity = 1Item 4: JL0042360, End Panel 1.2, quantity = 1Item 5: JL0042362, End Panel 2.2, quantity = 1Item 6: JL0042378, Side Panel 2, quantity = 1Item 7: JL0045393, End Panel 2.1, quantity = 1Item 8: JL0045409, End Panel 1.1, quantity = 1Item 9: JL0128430, FPC Extension Round, quantity = 2Item 10: JL0059811, HOM Side Extension 1, quantity =1Item 11: JL0060135, HOM Side Extension 2, quantity = 1Item 12: JL0060136, HOM Side Extension 3, quantity = 1 | [[Items\_INSP\_Tech]] <<SRF>>[[Items\_INSP\_Date]] <<TIMESTAMP>>[[ItemsComplete]] <<YESNO>>[[ListMissingItems]] <<COMMENT>>[[Shield\_Geometry\_OK]] <<YESNO>>[[Shield\_Geometry\_Notes]] <<COMMENT>> |
| 4 | Check with SOTR to see if the following inspection steps need to be completed or not.  | [[MAG\_Extended\_Insp]] {{cheng,edaly,areilly}} <<HOLDPOINT>> |

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| Step No. | Instructions | Data Input |
| 5 | **On-axis magnetic field mapping**Assemble a selected set of shields. On beam axis field mapping is to be performed in the CMTF, consult the SOTR about the locations to perform such measurements. Leaving 25″ leading and trailing distances, the overall measured distance is 24″ long, so the overall measured distance is 74″ long. **Note:** measurements shall be repeated with/without the magnetic shield along the same line and over the same distance. An aluminum frame has been developed to facilitate such magnetic fielding mapping. Requirements:1. Keep test setup away from ferritic materials that are prone to be magnetic.
2. Use an 3-axis magnetometer such as HMR2300.
3. Take pictures to show the measurement setup and probe/sensor axes orientation. Upload pictures.
4. Probe/sensor shall move along shield central axis (beam axis)
5. Start point to be 25″ away from shield edge, finish point to be appxoimately 25″ from shield too.
6. Record field components Bx, By, and Bz every 2″ along the shield axis.
7. Upload measured data.

Measured data will be used to calculate the overall permeability. Notify SOTR when data is uploaded.  | [[FieldMappingTech]] <<SRF>>[[FieldMappingDate]] <<TIMESTAMP>>[[TestSetupPics]] <<FILEUPLOAD>>[[WithShieldData]] <<FILEUPLOAD>>[[NoShieldData]] <<FILEUPLOAD>>[[FieldMappingNotes]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 6 | **Fit Up Test**Enter inspector name and inspection date.Perform a fit up test of the magnetic shield, which is used in on-axis field mapping, on an actual C75 cavity. The purpose is to check if there are any dimensional nonconformances that lead to difficulty in assembly. In case that the shield would not fit the dressed cavity, generate a NCR and describe in the comment field what obstructed the assembly. Upload pictures as proof.  | [[FitUpInspector]] <<SRF>>[[FitUpDate]] <<TIMESTAMP>>[[FitUpOK]] <<YESNO>>[[FitUpComments]] <<COMMENT>>[[FitUpPics]] <<FILEUPLOAD>> |
| 7 | Repackage the magnetic shield assembly then store it for use in cryounits assembly. | [[MAGRepackTech]] <<SRF>>[[MAGRepackDate]] <<TIMESTAMP>> |