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| Traveler Title | Receiving Inspection of C100 Cryomodule Helium Vessel |
| Traveler Abstract | This traveler is for inspection of C100 Cryomodule Helium Vessel sub-assemblies. Four sub-assemblies: helium vessel bellows, helium vessel shell assembly, tuner tab, and helium vessel head assembly will be inspected. Receiving inspection shall be performed per steps set forth in this traveler. |
| Traveler ID | C100R-INSP-HELV |
| Traveler Revision  | R1 |
| Traveler Author | Gary Cheng |
| Traveler Date | 14-Mar-22 |
| NCR Informative Emails | Edaly,areilly |
| NCR Dispositioners | Cheng,fischer |
| D3 Emails | Cheng,fischer,areilly |
| 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. |
| Helium vessel assembly drawings | Vacuum Leak Test Internal Evacuation – Small Items | Stainless Steel Cleaning and Handling | Statement of Work for C100 Cryomodule Helium Vessel Assembly | Head Assembly Inspection Sketch |
| [CRM-120-7020-1000 combined drawings.](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-27119/CRM1207020-0000%20Assy.pdf) | [JLAB Specification 11141S0029, Rev. A](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-25381/JLAB_SPEC_11141S0029_Rev%20A.pdf) | [JLAB specification 11141S0034](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-26545/JLAB_SPEC_11141S0034.pdf) | [JLAB Specification CRM-120-7000S-1006](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-27120/Spec.CRM120-7000S-1006%20Rev.D.pdf) | [INSP-CRM-120-7020-0025](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-27847/INSP-CRM-120-7020-0025.pdf) |

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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| **Step No.** | **Instructions** | **Data Input** |
| 1 | JLAB SOW for helium vessel requires vendor to submit a series of required documents prior to or with each delivery. Upload or make a note on where the vendor documentation package is stored. The project engineer is responsible to check if the following documents are in place and satisfactory.  | [[Inspection\_Date]] <<TIMESTAMP>>[[Project\_Engineer\_Check\_Point]] <<SRF>>[[HV\_Docs]] <<FILEUPLOAD>>[[HV\_Docs\_Note]] <<COMMENT>> |
| 1. Certified Mill Test Reports (CMTR) of all raw materials used to fabricate helium vessel components.
 | [[CMTRs\_Complete]] <<YESNO>>[[CMTR\_Comments]] <<COMMENT>> |
| 1. Leak check report
 | [[LCRptReviewer]] <<SRF>>[[LCRpt\_Good]] <<YESNO>>[[LCRpt\_Comments]] <<COMMENT>> |
| 1. Inspection reports for helium vessel components
 | [[InspRpt\_Complete]] <<YESNO>>[[InspRpt\_Comments]] <<COMMENT>> |
| 1. Cold shock test report.
 | [[Cold\_Shock\_Complete]] <<YESNO>>[[Cold\_Shock\_Comments]] <<COMMENT>> |
| 1. Reports on bellows.
 | [[BellowsRpt\_Complete]] <<YESNO>>[[Bellows\_rpts\_Comments]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 2 | Follow the requirements of 11141S0034, Section 3.0, at all times when handling clean stainless steel components. Make sure that the faces of the parts are protected from handling damage. **For this entire traveler, if any of the inspection items in this traveler are not as they should be, please generate either a D3 or an NCR, based on the inspector’s judgment.** Enter technician name:Enter date:Enter serial number of helium vessel kit being inspected: | [[Inspection\_Tech]] <<SRF>>[[Inspection\_Date]] <<TIMESTAMP>>[[HESSN]] <<HESSN>> |
| 3 | Inspect shipping crate for signs of damage. Check packing list against shipment and verify agreement. If the crate is damaged:1. Describe damage in comment field.
2. Take a picture of the damage and attach file(s).
 | [[CrateGoodCondition]] <<YESNO>>[[PackList\_accurate]] <<YESNO>>[[Crate\_Files]] <<FILEUPLOAD>>[[Crate\_Comment]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 4 | Visually inspect helium vessel sub-assemblies per ASTM Standard Practice A 380-72, paragraph 7.2.1 "Gross Inspection" as cited in JLAB specification 11141S0034, Section 4.1. Verify the following: |  |
| * Verify the quantity of the following:

Item 2, helium vessel bellows, quantity = 2Item 4, helium vessel shell assembly, quantity = 1Item 6, tuner tab, quantity = 4Item 7, helium vessel head, quantity = 2 | [[ItemsComplete]] <<YESNO>>[[ListMissingItems]] <<COMMENT>> |
| * Surface cleanness: perform visual inspection of surfaces per JLAB specification 11141S0034, Section 4.1. Conduct wipe test for evaluating the cleanness of surfaces not accessible for direct visual inspection. Make notes of surfaces that failed either visual inspection or wipe test.
 | [[SurfacesClean]] <<YESNO>>[[SurfaceCleannessNotes]] <<COMMENT>> |
| * Visually inspect the bellows convolutions. Check for structural integrity (kinks in metal). As long as the metal is not kinked, crimped, etc., bellows are okay. Avoid damaging the thin-walled bellows. Protect bellows with necessary covers or insulation after inspection.
 | [[BellowsConvolutionsOk]] <<YESNO>> |
| Make a note in the comment field for any damage. Use a boroscope and/or camera to take a picture of any damage (or questionable areas) and attach file(s).  | [[DamageFiles]] <<FILEUPLOAD>>[[DamageComment]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 5 | Enter technician name:Enter date:Take a series of pictures of the helium vessel assembly and loose items to document their arrival states. Similar items can be grouped for photographing.  | [[PictureTech]] <<SRF>>[[PictureDate]] <<TIMESTAMP>>[[PictureFiles]] <<FILEUPLOAD>>[[VisualExaminationEnd]] <<TIMESTAMP>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 6 | Magnetic permeability check.Enter technician name:Enter permeability check date:Use magnetic permeability gauge, such as a Severn permeability indicator, to inspect all welds and bodies of the parts. Move the gauge around the welds and inner and outer surfaces for maximum permeability value. If on the welds, permeability is higher than 2.0, or, on the body, permeability is higher than 1.20, answer “No” to the appropriate variable at right and notify project engineer. | [[PermeabilityTech]] <<SRF>>[[PermeabilityCheckDate]] <<TIMESTAMP>> |
| Shell body permeability < 1.20? | [[Shell\_Body\_Mu\_OK]]<<YESNO>> |
| Shell welds permeability < 2.0? | [[Shell\_Welds\_Mu\_OK]]<<YESNO>> |
| Bellows #1 body permeability < 1.20? | [[Bellows1\_Body\_Mu\_OK]]<<YESNO>> |
| Bellows #1 welds permeability < 2.0? | [[Bellows1\_Welds\_Mu\_OK]]<<YESNO>> |
| Bellows #2 body permeability < 1.20? | [[Bellows2\_Body\_Mu\_OK]]<<YESNO>> |
| Bellows #2 welds permeability < 2.0? | [[Bellows2\_Welds\_Mu\_OK]]<<YESNO>> |
| Head Assembly #1 body permeability < 1.20? | [[Head1\_Body\_Mu\_OK]]<<YESNO>> |
| Head Assembly #1 welds permeability < 2.0? | [[Head1\_Welds\_Mu\_OK]]<<YESNO>> |
| Head Assembly #2 body permeability < 1.20? | [[Head2\_Body\_Mu\_OK]]<<YESNO>> |
| Head Assembly #2 welds permeability < 2.0? | [[Head2\_Welds\_Mu\_OK]]<<YESNO>> |
| Notify the project engineer if there is any “No” in this step.  |  |

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| **Step No** | **Instructions** | **Data Inputs** |
| 7 | A certified weld examiner/inspector is required to inspect all welds to make sure that:* Welds are good; i.e., welds on parts should be smooth and flush, with no crevices, cracks or protrusions, weld oxidation shall have been brushed off. Verify weld sizes and patterns meeting specification in drawings. Make notes of any nonconformances.
* There should be no unusual discoloration to the base material, especially around the welds.
* Upload pictures of failed areas or areas of concern.
 | [[WeldInspector]] <<SRF>>[[WeldInspDate]] <<TIMESTAMP>>[[WeldsOk]] <<YESNO>>[[ColorationOk]] <<YESNO>>[[WeldsComments]] <<COMMENT>>[[BadWeldSurfPics]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| **8** | Dimension inspection: inspect dimensions of helium vessel sub-assemblies according to drawings. Any nonconformance shall result in a "NO" on the corresponding row. | [[DimInspector]] <<SRF>>[[DimInspDate]] <<TIMESTAMP>> |
| **Bellows #1** dimension inspection: refer to drawing CRM-120-7020-0007. Verify the following dimensions. Protect bellows from being damaged. Enter serial number. | **[[Bellows1\_SN]] <<TEXT>>** |
| Zone | Dimension | Tolerance | Measured | Measured value within tolerance? |
| C6 | 10.06 | Reference | [[Conv\_OD1]] <<FLOAT>> |  |
| C8 | 9.690 | +/-0.005 | [[LeftCuffOD1\_Val]] <<FLOAT>> | [[LeftCuffOD1]]<<YESNO>> |
| C6 | 9.030 | +/-0.005 | [[RightCuffOD1\_Val]] <<FLOAT>> | [[RightCuffOD1]]<<YESNO>> |
| B7 | 3.81 | +/-0.03 | [[Bellows1\_Len\_Val]] <<FLOAT>> | [[Bellows1\_Len]]<<YESNO>> |
| B4 | 0.38 | +/-0.03 | [[Bellows1\_Depth\_Val]] <<FLOAT>> | [[Bellows1\_Depth]]<<YESNO>> |
| **Bellows #2** dimension inspection: refer to drawing CRM-120-7020-0007. Verify the following dimensions. Protect bellows from being damaged. Enter serial number. | **[[Bellows2\_SN]] <<TEXT>>** |
| Zone | Dimension | Tolerance | Measured | Measured value within tolerance? |
| C6 | 10.06 | Reference | [[Conv\_OD2]] <<FLOAT>> |  |
| C8 | 9.690 | +/-0.005 | [[LeftCuffOD2\_Val]] <<FLOAT>> | [[LeftCuffOD2]]<<YESNO>> |
| C6 | 9.030 | +/-0.005 | [[RightCuffOD2\_Val]] <<FLOAT>> | [[RightCuffOD2]]<<YESNO>> |
| B7 | 3.81 | +/-0.03 | [[Bellows2\_Len\_Val]] <<FLOAT>> | [[Bellows2\_Len]]<<YESNO>> |
| B4 | 0.38 | +/-0.03 | [[Bellows2\_Depth\_Val]] <<FLOAT>> | [[Bellows2\_Depth]]<<YESNO>> |
| Make comments on the bellows dimensions if any: | [[BellowsDimNotes]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| **8 (Cont'd)** | **Helium vessel shell assembly** dimension inspection: refer to drawing CRM-120-7020-0008. Verify the following dimensions. Enter serial number. | **[[Shell\_SN]] <<TEXT>>** |
| Zone | Dimension | Tolerance | Measured | Measured value within tolerance? |
| D2 | 18.06 | +/-0.03 | [[Shell\_Len\_Val]] <<FLOAT>> | [[Shell\_Len]]<<YESNO>> |
| B8 | 9.03 | +/-0.03 | [[Inlet\_position\_Val]] <<FLOAT>> | [[Inlet\_position]]<<YESNO>> |
| B4 | 6.32 | +/-0.03 | [[Inlet\_Height\_Val]] <<FLOAT>> | [[Inlet\_Height]]<<YESNO>> |
| D3 | 9.03 | +/-0.03 | [[Outlet\_pos\_val]] <<FLOAT>> | [[Outlet\_position]]<<YESNO>> |
| - | Outlet saddle peak 1 to shell center distance | - | [[Peak1\_dist]] <<FLOAT>> | Distances shall differ < 0.03"[[SaddlePeaks\_flush]]<<YESNO>> |
| - | Outlet saddle peak 2 to shell center distance | - | [[Peak2\_dist]] <<FLOAT>> |
| B2 | 12.75 | +/-0.03 | [[FulcrumTabD1]]<<FLOAT>> | [[FulcrumTabDist1]]<<YESNO>> |
| B2 | 6.38 | +/-0.03 | [[FulcrumTabL1]]<<FLOAT>> | [[FulcrumTabLoc1]]<<YESNO>> |
| B2 | 12.75 | +/-0.03 | [[FulcrumTabD2]]<<FLOAT>> | [[FulcrumTabDist2]]<<YESNO>> |
| B2 | 6.38 | +/-0.03 | [[FulcrumTabL2]]<<FLOAT>> | [[FulcrumTabLoc2]]<<YESNO>> |
| B5 | 63° | +/-0.50° | [[LeftFulcrumA1]]<<FLOAT>> | [[LeftFulcrumAng1]]<<YESNO>> |
| B4 | 63° | +/-0.50° | [[RightFulcrumA1]]<<FLOAT>> | [[RightFulcrumAng1]]<<YESNO>> |
| B5 | 63° | +/-0.50° | [[LeftFulcrumA2]]<<FLOAT>> | [[LeftFulcrumAng2]]<<YESNO>> |
| B4 | 63° | +/-0.50° | [[RightFulcrumA2]]<<FLOAT>> | [[RightFulcrumAng2]]<<YESNO>> |
| - | Left end roundness | +/-0.30 | [[LeftEnd\_rnd]]<<FLOAT>> | [[LeftEnd\_round]]<<YESNO>> |
| - | Right end roundness | +/-0.30 | [[RightEnd\_rnd]]<<FLOAT>> | [[RightEnd\_round]]<<YESNO>> |
| Make comments on the shell dimensions if any: | [[ShellDimNotes]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| **8 (Cont’d)** | Select two out of four tuner tabs and perform measurements: 1) Line up all four tuner tabs on a flat surface; 2) if there are one or two not aligned with others, pick these; 3) if all lign up well, randomly pick two for measurements; 4) refer to drawing CRM-120-7020-0013. Verify the following dimensions.  |
| **Tuner Tab #1** Enter serial numbers of the tuner tabs inspected. | **[[TunerTab1\_SN]] <<TEXT>>** |
| Dimension | Tolerance | Measured | Measured value within tolerance? |
| 1.50 | +/-0.03 | [[Tab1\_Wid]] <<FLOAT>> | [[Tab1\_Width]]<<YESNO>> |
| 0.38 | +/-0.03 | [[Tab1\_T]] <<FLOAT>> | [[Tab1\_Thk]]<<YESNO>> |
| 0.94 | +/-0.03 | [[Tab1\_h]] <<FLOAT>> | [[Tab1\_height]]<<YESNO>> |
| 1.14 | +/-0.03 | [[Tab1\_PnHole\_h]] <<FLOAT>> | [[Tab1\_PinHole\_h]]<<YESNO>> |
| 0.30 | +/-0.03 | [[Tab1\_1stFn\_offset]] <<FLOAT>> | [[Tab1\_1stFin\_offset]]<<YESNO>> |
| 0.300 | +/-0.03 | [[Tab1\_1stFn\_W]] <<FLOAT>> | [[Tab1\_1stFin\_W]]<<YESNO>> |
| 0.600 | +/-0.005 | [[Tab1\_2ndFn\_offset1]] <<FLOAT>> | [[Tab1\_2ndFin\_offset1]]<<YESNO>> |
| 0.900 | +/-0.005 | [[Tab1\_2ndFn\_offset2]] <<FLOAT>> | [[Tab1\_2ndFin\_offset2]]<<YESNO>> |
| 0.19 | +/-0.03 | [[Tab1\_PnHole\_Loc]] <<FLOAT>> | [[Tab1\_PinHole\_Loc]]<<YESNO>> |
| 0.190~0.195 | - | [[Tab1\_PnHole\_Dia]] <<FLOAT>> | [[Tab1\_PinHole\_Dia]]<<YESNO>> |
| **Tuner Tab #2** Enter serial numbers of the tuner tabs inspected. | **[[TunerTab2\_SN]] <<TEXT>>** |
| Dimension | Tolerance | Measured | Measured value within tolerance? |
| 1.50 | +/-0.03 | [[Tab2\_Wid]] <<FLOAT>> | [[Tab2\_Width]]<<YESNO>> |
| 0.38 | +/-0.03 | [[Tab2\_T]] <<FLOAT>> | [[Tab2\_Thk]]<<YESNO>> |
| 0.94 | +/-0.03 | [[Tab2\_h]] <<FLOAT>> | [[Tab2\_height]]<<YESNO>> |
| 1.14 | +/-0.03 | [[Tab2\_PnHole\_h]] <<FLOAT>> | [[Tab2\_PinHole\_h]]<<YESNO>> |
| 0.30 | +/-0.03 | [[Tab2\_1stFn\_offset]] <<FLOAT>> | [[Tab2\_1stFin\_offset]]<<YESNO>> |
| 0.300 | +/-0.03 | [[Tab2\_1stFn\_W]] <<FLOAT>> | [[Tab2\_1stFin\_W]]<<YESNO>> |
| 0.600 | +/-0.005 | [[Tab2\_2ndFn\_offset1]] <<FLOAT>> | [[Tab2\_2ndFin\_offset1]]<<YESNO>> |
| 0.900 | +/-0.005 | [[Tab2\_2ndFn\_offset2]] <<FLOAT>> | [[Tab2\_2ndFin\_offset2]]<<YESNO>> |
| 0.19 | +/-0.03 | [[Tab2\_PnHole\_Loc]] <<FLOAT>> | [[Tab2\_PinHole\_Loc]]<<YESNO>> |
| 0.190~0.195 | - | [[Tab2\_PnHole\_Dia]] <<FLOAT>> | [[Tab2\_PinHole\_Dia]]<<YESNO>> |
| Make comments on tuner tabs dimensions if any: | [[TTabDimNotes]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| **8 (Cont’d)** | **Head Assembly #1** dimension inspection. Enter serial number. Refer to sketch [INSP-CRM-120-7020-0025](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-27847/INSP-CRM-120-7020-0025.pdf). Verify the following dimensions.  | **[[Head1\_SN]] <<TEXT>>** |
| Zone | Dimension | Tolerance | Measured | Measured value within tolerance? |
| C5 | 5.88 (5.875) | +/-0.03 | [[Head1\_LkPos1]]<<FLOAT>> | [[Head1\_LockPos1]]<<YESNO>> |
| B5 | 5.88(5.875) | +/-0.03 | [[Head1\_LkPos2]]<<FLOAT>> | [[Head1\_LockPos2]]<<YESNO>> |
| C4 | 8.107~8.116 | - | [[Head1\_ID1\_Val]]<<FLOAT>> | [[Head1\_ID1]]<<YESNO>> |
| C3 | 9.000 | +/-0.005 | [[Head1\_OD1\_Val]]<<FLOAT>> | [[Head1\_OD1]]<<YESNO>> |
| A4 | 2.49 | +/-0.03 | [[Head1\_L1\_Val]]<<FLOAT>> | [[Head1\_L1]]<<YESNO>> |
| A4 | 2.11 | +/-0.03 | [[Head1\_L2\_Val]]<<FLOAT>> | [[Head1\_L2]]<<YESNO>> |
| C4 | 0.42 | +/-0.03 | [[Head1\_L3\_Val]]<<FLOAT>> | [[Head1\_L3]]<<YESNO>> |
| B4 | 8.500 | +/-0.005 | [[Head1\_OD2\_Val]]<<FLOAT>> | [[Head1\_OD2]]<<YESNO>> |
| B4 | - | 0.005 | [[Head1\_TruePos]]<<FLOAT>> | [[Head1\_TruePosition]]<<YESNO>> |
| D7 | 2.00 | +/-0.03 | [[Head1\_TapHo1\_L1]]<<FLOAT>> | [[Head1\_TapHor1\_L1]]<<YESNO>> |
| D7 | 1.00 | +/-0.03 | [[Head1\_TapHo2\_L1]]<<FLOAT>> | [[Head1\_TapHor2\_L1]]<<YESNO>> |
| D7 | 2.00 | +/-0.03 | [[Head1\_TapHo3\_L1]]<<FLOAT>> | [[Head1\_TapHor3\_L1]]<<YESNO>> |
| D7 | 1.00 | +/-0.03 | [[Head1\_TapHo4\_L1]]<<FLOAT>> | [[Head1\_TapHor4\_L1]]<<YESNO>> |
| C8 | 5.94 | +/-0.03 | [[Head1\_LTapVr1\_L1]]<<FLOAT>> | [[Head1\_LTapVer1\_L1]]<<YESNO>> |
| C8 | 5.94 | +/-0.03 | [[Head1\_RTapVr1\_L1]]<<FLOAT>> | [[Head1\_RTapVer1\_L1]]<<YESNO>> |
| D8 | 0.62 | +/-0.03 | [[Head1\_LTapVr2\_L1]]<<FLOAT>> | [[Head1\_LTapVer2\_L1]]<<YESNO>> |
| D8 | 0.62 | +/-0.03 | [[Head1\_RTapVr2\_L1]]<<FLOAT>> | [[Head1\_RTapVer2\_L1]]<<YESNO>> |
| A7 | 2.00 | +/-0.03 | [[Head1\_TapHo1\_L2]]<<FLOAT>> | [[Head1\_TapHor1\_L2]]<<YESNO>> |
| A7 | 1.00 | +/-0.03 | [[Head1\_TapHo2\_L2]]<<FLOAT>> | [[Head1\_TapHor2\_L2]]<<YESNO>> |
| A7 | 2.00 | +/-0.03 | [[Head1\_TapHo3\_L2]]<<FLOAT>> | [[Head1\_TapHor3\_L2]]<<YESNO>> |
| A7 | 1.00 | +/-0.03 | [[Head1\_TapHo4\_L2]]<<FLOAT>> | [[Head1\_TapHor4\_L2]]<<YESNO>> |
| B8 | 5.94 | +/-0.03 | [[Head1\_LTapVr1\_L2]]<<FLOAT>> | [[Head1\_LTapVer1\_L2]]<<YESNO>> |
| B8 | 5.94 | +/-0.03 | [[Head1\_RTapVr1\_L2]]<<FLOAT>> | [[Head1\_RTapVer1\_L2]]<<YESNO>> |
| B8 | 0.62 | +/-0.03 | [[Head1\_LTapVr2\_L2]]<<FLOAT>> | [[Head1\_LTapVer2\_L2]]<<YESNO>> |
| B8 | 0.62 | +/-0.03 | [[Head1\_RTapVr2\_L2]]<<FLOAT>> | [[Head1\_RTapVer2\_L2]]<<YESNO>> |
| Make comments on head assembly #1 dimensions if any: | [[Head1DimNotes]] <<COMMENT>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| **8 (Cont’d)** | **Head Assembly #2** dimension inspection. Enter serial number. Refer to sketch [INSP-CRM-120-7020-0025](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-27847/INSP-CRM-120-7020-0025.pdf). Verify the following dimensions. | **[[Head2\_SN]] <<TEXT>>** |
| Zone | Dimension | Tolerance | Measured | Measured value within tolerance? |
| C5 | 5.88 (5.875) | +/-0.03 | [[Head2\_LkPos1]]<<FLOAT>> | [[Head2\_LockPos1]]<<YESNO>> |
| B5 | 5.88(5.875) | +/-0.03 | [[Head2\_LkPos2]]<<FLOAT>> | [[Head2\_LockPos2]]<<YESNO>> |
| C4 | 8.107~8.116 | - | [[Head2\_ID1\_Val]]<<FLOAT>> | [[Head2\_ID1]]<<YESNO>> |
| C3 | 9.000 | +/-0.005 | [[Head2\_OD1\_Val]]<<FLOAT>> | [[Head2\_OD1]]<<YESNO>> |
| A4 | 2.49 | +/-0.03 | [[Head2\_L1\_Val]]<<FLOAT>> | [[Head2\_L1]]<<YESNO>> |
| A4 | 2.11 | +/-0.03 | [[Head2\_L2\_Val]]<<FLOAT>> | [[Head2\_L2]]<<YESNO>> |
| C4 | 0.42 | +/-0.03 | [[Head2\_L3\_Val]]<<FLOAT>> | [[Head2\_L3]]<<YESNO>> |
| B4 | 8.500 | +/-0.005 | [[Head2\_OD2\_Val]]<<FLOAT>> | [[Head2\_OD2]]<<YESNO>> |
| B4 | - | 0.005 | [[Head2\_TruePos]]<<FLOAT>> | [[Head2\_TruePosition]]<<YESNO>> |
| D7 | 2.00 | +/-0.03 | [[Head2\_TapHo1\_L1]]<<FLOAT>> | [[Head2\_TapHor1\_L1]]<<YESNO>> |
| D7 | 1.00 | +/-0.03 | [[Head2\_TapHo2\_L1]]<<FLOAT>> | [[Head2\_TapHor2\_L1]]<<YESNO>> |
| D7 | 2.00 | +/-0.03 | [[Head2\_TapHo3\_L1]]<<FLOAT>> | [[Head2\_TapHor3\_L1]]<<YESNO>> |
| D7 | 1.00 | +/-0.03 | [[Head2\_TapHo4\_L1]]<<FLOAT>> | [[Head2\_TapHor4\_L1]]<<YESNO>> |
| C8 | 5.94 | +/-0.03 | [[Head2\_LTapVr1\_L1]]<<FLOAT>> | [[Head2\_LTapVer1\_L1]]<<YESNO>> |
| C8 | 5.94 | +/-0.03 | [[Head2\_RTapVr1\_L1]]<<FLOAT>> | [[Head2\_RTapVer1\_L1]]<<YESNO>> |
| D8 | 0.62 | +/-0.03 | [[Head2\_LTapVr2\_L1]]<<FLOAT>> | [[Head2\_LTapVer2\_L1]]<<YESNO>> |
| D8 | 0.62 | +/-0.03 | [[Head2\_RTapVr2\_L1]]<<FLOAT>> | [[Head2\_RTapVer2\_L1]]<<YESNO>> |
| A7 | 2.00 | +/-0.03 | [[Head2\_TapHo1\_L2]]<<FLOAT>> | [[Head2\_TapHor1\_L2]]<<YESNO>> |
| A7 | 1.00 | +/-0.03 | [[Head2\_TapHo2\_L2]]<<FLOAT>> | [[Head2\_TapHor2\_L2]]<<YESNO>> |
| A7 | 2.00 | +/-0.03 | [[Head2\_TapHo3\_L2]]<<FLOAT>> | [[Head2\_TapHor3\_L2]]<<YESNO>> |
| A7 | 1.00 | +/-0.03 | [[Head2\_TapHo4\_L2]]<<FLOAT>> | [[Head2\_TapHor4\_L2]]<<YESNO>> |
| B8 | 5.94 | +/-0.03 | [[Head2\_LTapVr1\_L2]]<<FLOAT>> | [[Head2\_LTapVer1\_L2]]<<YESNO>> |
| B8 | 5.94 | +/-0.03 | [[Head2\_RTapVr1\_L2]]<<FLOAT>> | [[Head2\_RTapVer1\_L2]]<<YESNO>> |
| B8 | 0.62 | +/-0.03 | [[Head2\_LTapVr2\_L2]]<<FLOAT>> | [[Head2\_LTapVer2\_L2]]<<YESNO>> |
| B8 | 0.62 | +/-0.03 | [[Head2\_RTapVr2\_L2]]<<FLOAT>> | [[Head2\_RTapVer2\_L2]]<<YESNO>> |
| Make comments on head assembly #2 dimensions if any: | [[Head2DimNotes]] <<COMMENT>> |
| 9 | End of dimensional inspection. Items shall resume kitted and transferred to cryomodule assembly group for leak check.  |  |
| **Step No** | **Instructions** | **Data Inputs** |
| 10 | Vacuum leak check per 11141S029, Rev. A. The leak rate shall be less than 1×10-10 atm cc/sec. | [[HVLeakCheckTech]] <<SRF>>[[HVLeakCheckDate]] <<TIMESTAMP>> |
| Head assembly #1 vacuum leak check. Enter serial number. Upload leak check strip chart. | **[[Head1\_SN]] <<TEXT>>**[[Head1LeakCheckPassed]]: <<YESNO>>[[Head1LeakCheckChart]] <<FILEUPLOAD>> |
| Head assembly #2 vacuum leak check. Enter serial number. Upload leak check strip chart. | **[[Head2\_SN]] <<TEXT>>**[[Head2LeakCheckPassed]]: <<YESNO>>[[Head2LeakCheckChart]] <<FILEUPLOAD>> |
| Bellows #1 vacuum leak check. Enter serial number. Upload leak check strip chart. Protect bellows during test. | **[[Bellows1SN]] <<TEXT>>**[[Bellows1LeakCheckPassed]]: <<YESNO>>[[Bellows1LeakCheckChart]] <<FILEUPLOAD>> |
| Bellows #2 vacuum leak check. Enter serial number. Upload leak check strip chart. Protect bellows during test. | **[[Bellows2SN]] <<TEXT>>**[[Bellows2LeakCheckPassed]]: <<YESNO>>[[Bellows2LeakCheckChart]] <<FILEUPLOAD>> |
| Shell assembly vacuum leak check. Enter serial number. Upload leak check strip chart. | **[[ShellAssy\_SN]] <<TEXT>>**[[Shell1LeakCheckPassed]]: <<YESNO>>[[ShellLeakCheckChart]] <<FILEUPLOAD>> |
| Comment leak check on all helium vessel subassemblies. | **[[CommentLeakCheck]] <<COMMENT>>** |
| 11 | Repackage & re-kitting. Items shall be repackaged and kitted for storage if installation is not imminent.  |  |