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| Traveler Title | Horizontal HOM Feedthrough Fabrication |
| Traveler Abstract | This traveler defines the steps for fabricating HHOM-FTs for the AUP RFD Cavity |
| Traveler ID | AUPPS-FAB-HHOMFT-ASSY |
| Traveler Revision  | R3 |
| Traveler Author | N. HUQUE |
| Traveler Date | 9-Aug-22 |
| NCR Informative Emails | AREILLY,AOBRIEN,GROSE |
| NCR Dispositioners | HUQUE,DOBRENZ |
| D3 Emails | HUQUE,DOBRENZ,AREILLY,AOBRIEN,GROSE |
| Approval Names | Naeem Huque | Adam OBrien | Greg Grose | Tony Reilly |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Reviewer | Department Head |

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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. |
| [**11141S0029**](https://misportal.jlab.org/jlabDocs/items/70285) | [**AUP-PR-LEAK-CMA-LN2**](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260916/AUP-PR-LEAK-CMA-LN2-R1%282%29.pdf) | [**CP-AUP-CAV-CHEM-ACID**](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2%282%29.pdf) | [**CP-AUP-CAV-CHEM-DEGR**](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260913/CP-AUP-CAV-CHEM-DEGR-R2%282%29.pdf) | [**JL0089760**](https://misportal.jlab.org/jlabDocs/documents/versions/149518/download) |
| [**JL0089865**](https://misportal.jlab.org/jlabDocs/documents/versions/160950/download) | [**JL0092614**](https://misportal.jlab.org/jlabDocs/documents/versions/178857/download) | **[JL0124776](https://misportal.jlab.org/jlabDocs/documents/versions/181064/download)** | [**JL0124780**](https://misportal.jlab.org/jlabDocs/documents/versions/180997/download) | [**JL0124781**](https://misportal.jlab.org/jlabDocs/documents/versions/180747/download) |
| [**JL0124782**](https://misportal.jlab.org/jlabDocs/documents/versions/181007/download) | [**LHCACFHC0206**](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260912/LHCACFHC0206.pdf) |  |  |  |

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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Added Step 6a-1. Removed Step 7f. Updated NCR Informative and D3 emails. Updated Reviewer from Scott Williams to Greg Grose. Updated images in Steps 1a, 2a, 7b and 8b. |
| R3 | Removed Ed Daly from NCR Dispositioners and D3 Emails. Updated image in Step 1a. |

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| Step No. | Instructions | Data Input |
|  | Serial Number of top assembly | [[HHOMFTSN]] <<HHOMFTSN>> |
| PART INSPECTION |
| 1a | Serial number of JL0124781- Feedthrough Rod | [[HFTRODSN]] <<HFTRODSN>> |
| 1b | Upload Material Certificates, along with any relevant photos and/or comments | [[Doc1Tech]] <<SRF>>[[Doc1Time]] <<TIMESTAMP>>[[Doc1Comm]] <<COMMENT>>[[Doc1File]] <<FILEUPLOAD>> |
| 1c | Machine the component as per drawing JL0124781.Upload any relevant photos and/or comments | [[Mach1Tech]] <<SRF>>[[Mach1Time]] <<TIMESTAMP>>[[Mach1Comm]] <<COMMENT>>[[Mach1File]] <<FILEUPLOAD>> |
| 1d | Verify dimensions on JL0124781.Upload inspection report along with any relevant photos and/or comments. | [[CMM1Tech]] <<SRF>>[[CMM1Time]] <<TIMESTAMP>>[[CMM1Comm]] <<COMMENT>>[[CMM1File]] <<FILEUPLOAD>> |
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| 2a | Serial number of JL0124782 – Connector | [[CONNSN]] <<CONNSN>> |
| 2b | Upload Material Certificates, along with any relevant photos and/or comments | [[Doc2Tech]] <<SRF>>[[Doc2Time]] <<TIMESTAMP>>[[Doc2Comm]] <<COMMENT>>[[Doc2File]] <<FILEUPLOAD>> |
| 2c | Machine the component as per drawing JL0124782.Upload any relevant photos and/or comments | [[Mach2Tech]] <<SRF>>[[Mach2Time]] <<TIMESTAMP>>[[Mach2Comm]] <<COMMENT>>[[Mach2File]] <<FILEUPLOAD>> |
| 2d | Verify dimensions on JL0124782Upload inspection report along with any relevant photos and/or comments. | [[CMM2Tech]] <<SRF>>[[CMM2Time]] <<TIMESTAMP>>[[CMM2Comm]] <<COMMENT>>[[CMM2File]] <<FILEUPLOAD>> |
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| 3a | Serial number of JL0089865 – Copper Ring | [[CURNGSN]] <<CURNGSN>> |
| 3b | Upload Material Certificates, along with any relevant photos and/or comments | [[Doc3Tech]] <<SRF>>[[Doc3Time]] <<TIMESTAMP>>[[Doc3Comm]] <<COMMENT>>[[Doc3File]] <<FILEUPLOAD>> |
| 3c | Machine the component as per drawing JL0089865.Upload any relevant photos and/or comments | [[Mach3Tech]] <<SRF>>[[Mach3Time]] <<TIMESTAMP>>[[Mach3Comm]] <<COMMENT>>[[Mach3File]] <<FILEUPLOAD>> |
| 3d | Verify dimensions on JL0089865Upload inspection report along with any relevant photos and/or comments. | [[CMM3Tech]] <<SRF>>[[CMM3Time]] <<TIMESTAMP>>[[CMM3Comm]] <<COMMENT>>[[CMM3File]] <<FILEUPLOAD>> |
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| 4a | Serial number of JL0089760 – DN40 Flange | [[DN40SN]] <<DN40SN>> |
| 4b | Upload Material Certificates, along with any relevant photos and/or comments | [[Doc4Tech]] <<SRF>>[[Doc4Time]] <<TIMESTAMP>>[[Doc4Comm]] <<COMMENT>>[[Doc4File]] <<FILEUPLOAD>> |
| 4c | Machine the component as per drawing JL0089760.Upload any relevant photos and/or comments | [[Mach4Tech]] <<SRF>>[[Mach4Time]] <<TIMESTAMP>>[[Mach4Comm]] <<COMMENT>>[[Mach4File]] <<FILEUPLOAD>> |
| 4d | Verify dimensions on JL0089760Upload inspection report along with any relevant photos and/or comments. | [[CMM4Tech]] <<SRF>>[[CMM4Time]] <<TIMESTAMP>>[[CMM4Comm]] <<COMMENT>>[[CMM4File]] <<FILEUPLOAD>> |
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| 5a | Serial number of LHCACFHC0206 – Ceramic | [[CRMCSN]] <<CRMCSN>> |
| 5b | Upload Material Certificates and Metrology Report, along with any relevant photos and/or comments | [[Doc5Tech]] <<SRF>>[[Doc5Time]] <<TIMESTAMP>>[[Doc5Comm]] <<COMMENT>>[[Doc5File]] <<FILEUPLOAD>> |
| 5c | Verify dimensions on LHCACFHC0206Upload inspection report along with any relevant photos and/or comments. | [[CMM5Tech]] <<SRF>>[[CMM5Time]] <<TIMESTAMP>>[[CMM5Comm]] <<COMMENT>>[[CMM5File]] <<FILEUPLOAD>> |
| 5d | Clean LHCACFHC0206 as per CP-AUP-CAV-CHEM-DEGR | [[Deg1Tech]] <<SRF>>[[Deg1Time]] <<TIMESTAMP>>[[Deg1Comm]] <<COMMENT>>[[Deg1File]] <<FILEUPLOAD>> |
| 5e | Heat treat the ceramic at At 800C for 2hr, in vacuum <10-5 mbar. Upload pressure and temperature graphs. | [[Heat1Tech]] <<SRF>>[[Heat1Time]] <<TIMESTAMP>>[[Heat1Comm]] <<COMMENT>>[[Heat1File]] <<FILEUPLOAD>> |

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| BRAZING |
|  | Inform SRF Inventory that the assembly location is Brazing Room |  |
| 6a | Degrease and Acid-Etch components of JL0092614 as per AUP-CAV-CHEM-ACID and CP-AUP-CAV-CHEM-DEGR | [[Chem1Tech]] <<SRF>>[[Chem1Time]] <<TIMESTAMP>>[[Chem1Comm]] <<COMMENT>>[[Chem1File]] <<FILEUPLOAD>> |
| 6a-1 | Heat treat the Stainless Steel flange (JL0089760) at 950°C for 2 hours  | [[HT1Tech]] <<SRF>>[[HT1Time]] <<TIMESTAMP>>[[HT1Comm]] <<COMMENT>>[[HT1File]] <<FILEUPLOAD>> |
| 6b | Braze assembly as per JL0092614. Upload brazing report and photos. Include any applicable comments | [[Brz1Tech]] <<SRF>>[[Brz1Time]] <<TIMESTAMP>>[[Brz1Comm]] <<COMMENT>>[[Brz1File]] <<FILEUPLOAD>> |
| 6c | Visual Inspection after Brazing. Upload visual inspection report | [[Vis1Tech]] <<SRF>>[[Vis1Time]] <<TIMESTAMP>>[[Vis1Comm]] <<COMMENT>>[[Vis1File]] <<FILEUPLOAD>> |
| 6d | Leak Test the assembly as per 11141S0029. Upload leak test report (PS-7 form) | [[Leak1Tech]] <<SRF>>[[Leak1Time]] <<TIMESTAMP>>[[Leak1Comm]] <<COMMENT>>[[Leak1File]] <<FILEUPLOAD>> |
| 6e | Inform SRF Inventory that the assembly location is the Machine Shop. Machine the ID as per JL0092614. Upload images of finished parts and any other notable features | [[Mach5Tech]] <<SRF>>[[Mach5Time]] <<TIMESTAMP>>[[Mach5Comm]] <<COMMENT>>[[Mach5File]] <<FILEUPLOAD>> |
| 6f | Inform SRF Inventory that the assembly will be shipped to the testing vendor. Perform Ultrasonic Testing of the braze. Upload test report. Does the braze pass? | [[UT1Tech]] <<SRF>>[[UT1Time]] <<TIMESTAMP>>[[UT1Comm]] <<COMMENT>>[[UT1File]] <<FILEUPLOAD>>[[UT1\_Pass]] <<YESNO>> |

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| BRAZING |
|  | Inform SRF Inventory that the assembly location is Brazing Room |  |
| 7a | Degrease and Acid-Etch components of JL0124780 as per CP-AUP-CAV-CHEM-ACID and CP-AUP-CAV-CHEM-DEGR | [[Chem2Tech]] <<SRF>>[[Chem2Time]] <<TIMESTAMP>>[[Chem2Comm]] <<COMMENT>>[[Chem2File]] <<FILEUPLOAD>> |
| 7b | Braze assembly as per JL0124780. Upload brazing report and photos. Include any applicable comments | [[Brz2Tech]] <<SRF>>[[Brz2Time]] <<TIMESTAMP>>[[Brz2Comm]] <<COMMENT>>[[Brz2File]] <<FILEUPLOAD>> |
| 7c | Visual Inspection after Brazing. Upload visual inspection report | [[Vis2Tech]] <<SRF>>[[Vis2Time]] <<TIMESTAMP>>[[Vis2Comm]] <<COMMENT>>[[Vis2File]] <<FILEUPLOAD>> |
| 7d | Leak Test the assembly as per 11141S0029. Upload leak test report (PS-7 form) | [[Leak2Tech]] <<SRF>>[[Leak2Time]] <<TIMESTAMP>>[[Leak2Comm]] <<COMMENT>>[[Leak2File]] <<FILEUPLOAD>> |
| 7e | Inform SRF Inventory that the assembly will be shipped out to the testing vendor. Perform Ultrasonic Testing of the two brazes. Upload test report. Does the braze pass? | [[UT2Tech]] <<SRF>>[[UT2Time]] <<TIMESTAMP>>[[UT2Comm]] <<COMMENT>>[[UT2File]] <<FILEUPLOAD>>[[UT2\_Pass]] <<YESNO>> |
| 7g | Verify dimensions on JL0124780Upload inspection report along with any relevant photos and/or comments. | [[CMM6Tech]] <<SRF>>[[CMM6Time]] <<TIMESTAMP>>[[CMM6Comm]] <<COMMENT>>[[CMM6File]] <<FILEUPLOAD>> |

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| EBW |
|  | Inform SRF Inventory that the assembly location is EBW |  |
| 8a | Degrease and Acid-Etch components of JL0124776 as per CP-AUP-CAV-CHEM-ACID and CP-AUP-CAV-CHEM-DEGR. Upload BCP report. | [[Chem3Tech]] <<SRF>>[[Chem3Time]] <<TIMESTAMP>>[[Chem3Comm]] <<COMMENT>>[[Chem3File]] <<FILEUPLOAD>> |
| 8b | EB weld as per JL0124776. Upload images | [[EBWTech]] <<SRF>>[[EBWTime]] <<TIMESTAMP>>[[EBWComm]] <<COMMENT>>[[EBWFile]] <<FILEUPLOAD>> |
| 8c | Visual Inspection after EBW. Upload visual inspection report | [[Vis3Tech]] <<SRF>>[[Vis3Time]] <<TIMESTAMP>>[[Vis3Comm]] <<COMMENT>>[[Vis3File]] <<FILEUPLOAD>> |
| 8d | Leak Test the assembly as per 11141S0029, using the leak checking fixture and a new flat gasket (LHCACFHC0259). Upload leak test report (PS-7 form) | [[Leak3Tech]] <<SRF>>[[Leak3Time]] <<TIMESTAMP>>[[Leak3Comm]] <<COMMENT>>[[Leak3File]] <<FILEUPLOAD>> |
| 8e | Inform SRF Inventory that the assembly will be shipped out to the testing vendor. Perform Radiographic testing on JL0124776 EB welds. Upload RT report and films | [[RTTech]] <<SRF>>[[RTTime]] <<TIMESTAMP>>[[RTComm]] <<COMMENT>>[[RTFile]] <<FILEUPLOAD>> |
| 8f | Verify dimensions on JL0124776Upload inspection report along with any relevant photos and/or comments. | [[CMM7Tech]] <<SRF>>[[CMM7Time]] <<TIMESTAMP>>[[CMM7Comm]] <<COMMENT>>[[CMM7File]] <<FILEUPLOAD>> |
| 8g | Clear hold point until HHOM is ready for assembly | [[HFTHold]] {{huque}} <<HOLDPOINT>> |
| 8h | Assemble on HHOM as per JL0093253 | [[AssyTech]] <<SRF>>[[AssyTime]] <<TIMESTAMP>>[[AssyComm]] <<COMMENT>>[[AssyFile]] <<FILEUPLOAD>> |