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| Traveler Title | VHOM Waveguide.Fabrication Traveler | | | |
| Traveler Abstract | Stamping and welding Niobium parts to make EIC 197 Crab Prototype VHOM Waveguide | | | |
| Traveler ID | EICCRB-FAB-VHOM-EBW | | | |
| Traveler Revision | R1 | | | |
| Traveler Author | SHANMUGASUNDARAM,SHYAMALA | | | |
| Traveler Date | 11-Feb-25 | | | |
| NCR Informative Emails | SHANMUG, AREILLY, MOSBY,KDAVIS | | | |
| NCR Dispositioners | HUQUE, SHANMUG, BUTTLES | | | |
| D3 Emails | HUQUE, SHANMUG, BUTTLES, KDAVIS, GEORGED,MOSBY, AREILLY | | | |
| Approval Names | S. SHANMUGASUNDARAM | K. DAVIS | J. BUTTLES | N. HUQUE |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Group Leader | 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. | | | |
| [JL0140290](https://misportal.jlab.org/jlabDocs/documents/versions/197302/download) | [JL0136184](https://misportal.jlab.org/jlabDocs/documents/versions/178317/download) | [JL0140929](https://misportal.jlab.org/jlabDocs/documents/versions/197302/download) | [JL0140289](https://misportal.jlab.org/jlabDocs/documents/versions/177140/download) | [JL0136185](https://misportal.jlab.org/jlabDocs/documents/versions/178324/download) |
| [JL0129149](https://misportal.jlab.org/jlabDocs/documents/versions/185651/download) | [JL0135207](https://misportal.jlab.org/jlabDocs/documents/versions/180558/download) | [JL0141208](https://misportal.jlab.org/jlabDocs/documents/versions/179414/download) | [JL0141209](https://misportal.jlab.org/jlabDocs/documents/versions/176866/download) | [JL0136186](https://misportal.jlab.org/jlabDocs/documents/versions/184198/download) |
| [JL0140820](https://misportal.jlab.org/jlabDocs/documents/versions/188420/download) | [JL0148688](https://misportal.jlab.org/jlabDocs/documents/versions/189099/download) | [11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download) | [JL0127968](https://misportal.jlab.org/jlabDocs/documents/versions/165233/download) | [JL0132924](https://misportal.jlab.org/jlabDocs/documents/versions/184471/download) |
| [JL0171267](https://misportal.jlab.org/jlabDocs/documents/versions/201766/download) | [JL0171268](https://misportal.jlab.org/jlabDocs/documents/versions/201735/download) | [Fabrication Plan](https://jeffersonlab.sharepoint.com/:p:/r/sites/EICPartnerProject-TJNAF/Accelerator/RF%20Systems/Cryomodules/197%20MHz%20DVC/Cavity%20Fabrication%20Files/Fabrication%20Plans/VHOM%20Waveguide%20Fabrication%20Plan.pptx?d=w0a11fca551c04807bf613a55a81b8aee&csf=1&web=1&e=dychDT) | [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) | [SRF-MSPR-CHEM-FBH-DEGR-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261899/SRF-MSPR-CHEM-FBH-DEGR-R1.pdf) |

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

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| Step No. | Instructions | Data Input |
| 0 | Enter Serial Number of Finished Part   |  |  |  | | --- | --- | --- | | **STEPS** | **WORK CENTER AREAS** | **ACTIONS** | | 1 | MACHSHOP | Part Forming | | 2 | MACHSHOP | Part Machining | | 3 | CHEM | BCP | | 4 |  |  | | 5 | EBW | EBW | | 6 | CMA | Leak Check | | 7 | MACHSHOP | Part Machining | | 8 | MACHSHOP | Part Machining | | 9 | CHEM | DEGR | | 10 | INSP | CMM | | 11 | CHEM | BCP | | 12 | CHEM | BCP | | 13 | CHEM | BCP | | 14 | CHEM | BCP | | 15 | EBW | EBW | | 16 | CMA | Leak Check | | 17 | CHEM | BCP | | 18 | EBW | EBW | | 19 | CMA | Leak Check | | 20 | MACHSHOP | Part Machining | | 21 | CHEM | DEGR | | 22 | INSP | CMM | | 23 | INSP | Acceptance Check | | [[VWGFASN]] <<SN>> |
| 1 | Form two units of JL0140290 and two units of JL0140289 using JL0127968 as the forming die.  Use 4.17mm Nb Sheet of appropriate dimension.  Upload any relevant images/files. | [[VWGFormTech]] <<SRF>>  [[VWGFormTime]] <<TIMESTAMP>>  [[VWGFormComment]] <<COMMENT>>  [[VWGFormFile]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| 2 | Use machining fixture JL0132924 to machine weld preps on JL0140290 and JL0140289.      Upload any relevant images/files. | [[VWGFormMachTech]] <<SRF>>  [[VWGFormMachTime]] <<TIMESTAMP>>  [[VWGFormMachComment]] <<COMMENT>>  [[VWGFormMachFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 3 | Perform 15 Microns BCP on both stamped pieces of JL0140290 and JL0140289.  Upload any relevant images/files. | [[VWGFormBCPTech]] <<SRF>>  [[VWGFormBCPTime]] <<TIMESTAMP>>  [[VWGFormBCPComment]] <<COMMENT>>  [[VWGFormBCPFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 4 | EBW two units of JL0140290 to make JL0136184 using JL0140820 as the EBW fixture.  Upload any relevant images/files. | [[VWGINSN]] <<SN>>  [[VWGInEBWTech]] <<SRF>>  [[VWGInEBWTime]] <<TIMESTAMP>>  [[VWGInEBWComment]] <<COMMENT>>  [[VWGInEBWFile]] <<FILEUPLOAD>> |
| 5 | EBW two units of JL0140289 to make JL0136185 using JL0140820 as the EBW fixture.  Upload any relevant images/files. | [[VWGOUTSN]] <<SN>>  [[VWGOutEBWTech]] <<SRF>>  [[VWGOutEBWTime]] <<TIMESTAMP>>  [[VWGOutEBWComment]] <<COMMENT>>  [[VWGOutEBWFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 6 | Perform intermediate leak check of JL0136184 and JL0136185 using the Vendor Standard Helium Leak Check Procedure ([11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download)).  Describe the results of the leak check.  Upload any relevant images/files. | [[VWGInOutLeakTech]] <<SRF>>  [[VWGInOutLeakTime]] <<TIMESTAMP>>  [[VWGInOutLeakComment]] <<COMMENT>>  [[VWGInOutLeakFile]] <<FILEUPLOAD>> |
|  | Email the TR to move the welded parts to the machine shop for further machining. | [[EmailTRMoveVWGInOutWeld]] {{SHANMUG}} <<EMAIL>>  [[EmailTRMoveVWGInOutWeld]] {{Attention: VHOM Traveler Request}} <<EMAILSUBJ>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 7 | Using machining fixture JL0171267, machine weld preps for both sides of JL0136184. Enter Job Number in the traveler.    Upload any relevant images/files. | [[VWGInMachTech]] <<SRF>>  [[VWGInMachTime]] <<TIMESTAMP>>  [[VWGInMachJobNumber]] <<INTEGER>>  [[VWGInMachComment]] <<COMMENT>>  [[VWGInMachFile]] <<FILEUPLOAD>> |
| 8 | Using machining fixture JL0171268, machine weld preps for both sides of JL0136185. Enter Job Number in the traveler.    Upload any relevant images/files. | [[VWGOutMachTech]] <<SRF>>  [[VWGOutMachTime]] <<TIMESTAMP>>  [[VWGOutMachJobNumber]] <<INTEGER>>  [[VWGOutMachComment]] <<COMMENT>>  [[VWGOutMachFile]] <<FILEUPLOAD>> |
|  | Email TR to send machined part to CMM. | [[Email TR VWGInOutWeldments CMM Move]] {{SHANMUG}} <<EMAIL>>  [[Email TR VWGInOutWeldments CMM Move]] {{Attention: VHOM Traveller Machine Shop to CMM Move}} <<EMAILSUBJ>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 9 | Degrease JL0136184and JL0136185 using the procedure SRF-MSPR-CHEM-FBH-DEGR-R1. | [[VWGInOutWeldmentsDgrsTech]] <<SRF>>  [[VWGInOutWeldmentsDgrsTime]] <<TIMESTAMP>>  [[VWGInOutWeldmentsDgrsComm]] <<COMMENT>>  [[VWGInOutWeldmentsDgrsFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 10 | Perform intermediate CMM on JL0136184 and JL0136185.  Upload any relevant images/files. | [[VWGInOutWeldmentsCMMTech]] <<SRF>>  [[VWGInOutWeldmentsCMMTime]] <<TIMESTAMP>>  [[VWGInOutWeldmentsCMMComment]] <<COMMENT>>  [[VWGInOutWeldmentsCMMFile]] <<FILEUPLOAD>> |
|  | Send part to BCP. |  |

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| **Step No** | **Instructions** | **Data Inputs** |
| 11 | Perform 15 Micron BCP (on weld regions only) on JL0136184 and JL0136185.    Upload any relevant images/files. | [[VWGInOutWeldmentsBCPTech]] <<SRF>>  [[VWGInOutWeldmentsBCPTime]] <<TIMESTAMP>>  [[VWGInOutWeldmentsBCPComment]] <<COMMENT>>  [[VWGInOutWeldmentsBCPFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 12 | Perform 15 Micron BCP on JL0140929 (weld regions only) using the SRF-MSPR-CHEM-NB-ACID-R1 procedure.    Upload any relevant images/files. | [[VWGTransitionBCPTech]] <<SRF>>  [[VWGTransitionBCPTime]] <<TIMESTAMP>>  [[VWGTransitionBCPComment]] <<COMMENT>>  [[VWGTransitionBCPFile]] <<FILEUPLOAD>> |
| 13 | Perform 15 Micron BCP on part JL0129149 using the SRF-MSPR-CHEM-NB-ACID-R1 procedure.  Upload any relevant images/files. | [[VWGFlangeBCPTech]] <<SRF>>  [[VWGFlangeBCPTime]] <<TIMESTAMP>>  [[VWGFlangeBCPComment]] <<COMMENT>>  [[VWGFlangeBCPFile]] <<FILEUPLOAD>> |
| 14 | Perform 15 Micron BCP on part JL0135207 using the SRF-MSPR-CHEM-NB-ACID-R1 procedure.  Upload any relevant images/files. | [[VWGDishTransitionBCPTech]] <<SRF>>  [[VWGDishTransitionBCPTime]] <<TIMESTAMP>>  [[VWGDishTransitionBCPComment]] <<COMMENT>>  [[VWGDishTransitionBCPFile]] <<FILEUPLOAD>> |
|  | Send the three parts to EBW. |  |

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| **Step No** | **Instructions** | **Data Inputs** |
| 15 | EBW JL0136185, JL0129149 and JL0135207 to make weldment JL0141208.  Use JL0148688 as the welding fixture for this weldment.  Upload any relevant images/files. | [[VWGFIRSTSN]] <<SN>>  [[VWGFirstStageEBWTech]] <<SRF>>  [[VWGFirstStageEBWTime]] <<TIMESTAMP>>  [[VWGFirstStageEBWComment]] <<COMMENT>>  [[VWGFirstStageEBWEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFirstStageEBWEmail]] {{VHOM Traveler First Stage EBW Update}} <<EMAILSUBJ>>  [[VWGFirstStageEBWFile]] <<FILEUPLOAD>> |
|  | Send welded part for intermediate leak check. |  |

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| **Step No** | **Instructions** | **Data Inputs** |
| 16 | Perform intermediate leak check of JL0141208 using the Vendor Standard Helium Leak Check Procedure ([11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download)).  Describe the results of the leak check.  Upload any relevant images/files. | [[VWGFirstStageLeakTech]] <<SRF>>  [[VWGFirstStageLeakTime]] <<TIMESTAMP>>  [[VWGFirstStageLeakComment]] <<COMMENT>>  [[VWGFirstStageLeakEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFirstStageLeakEmail]] {{VHOM Traveler Leak Check First Stage Update}} <<EMAILSUBJ>>  [[VWGFirstStageLeakFile]] <<FILEUPLOAD>> |
|  | Send part for BCP. |  |

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| **Step No** | **Instructions** | **Data Inputs** |
| 17 | Do BCP on JL0141208 (weld regions only).    Upload any relevant images/files. | [[VWGFirstStageBCPTech]] <<SRF>>  [[VWGFirstStageBCPTime]] <<TIMESTAMP>>  [[VWGFirstStageBCPComment]] <<COMMENT>>  [[VWGFirstStageBCPFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 18 | EBW JL0136184, JL0140929 and JL0141208 to make weldment JL0141209.  Use JL0148688 as welding fixture for this weldment.  Upload any relevant images/files. | [[VWGFINALSN]] <<SN>>  [[VWGFinalStageEBWTech]] <<SRF>>  [[VWGFinalStageEBWTime]] <<TIMESTAMP>>  [[VWGFinalStageEBWComment]] <<COMMENT>>  [[VWGFinalStageEBWEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFinalStageEBWEmail]] {{VHOM Traveler Final Stage EBW Update}} <<EMAILSUBJ>>  [[VWGFinalStageEBWFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 19 | Perform final leak check on JL0141209.  Upload any relevant images/files. | [[VWGFinalStageLeakTech]] <<SRF>>  [[VWGFinalStageLeakTime]] <<TIMESTAMP>>  [[VWGFinalStageLeakComment]] <<COMMENT>>  [[VWGFinalStageLeakFile]] <<FILEUPLOAD>> |
|  | Email TR to move part to machine shop for machining.  Upload any relevant images/files. | [[VWGFinalStageEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFinalStageEmail]] {{Attention: VHOM Traveler Move}} <<EMAILSUBJ>>  [[VWGFinalStageFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 20 | Machine transition piece to end dish per drawing no. JL0136186.  Upload any relevant images/files. | [[VWGFinalStageMachTech]] <<SRF>>  [[VWGFinalStageMachTime]] <<TIMESTAMP>>  [[VWGFinalStageMachComment]] <<COMMENT>>  [[VWGFinalStageMachEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFinalStageMachEmail]] {{VHOM Traveler Final Machining Update}} <<EMAILSUBJ>>  [[VWGFinalStageMachFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 21 | Degrease JL0136186 using the procedure SRF-MSPR-CHEM-FBH-DEGR-R1. | [[VWGFinalStageDgrsTech]] <<SRF>>  [[VWGFinalStageDgrsTime]] <<TIMESTAMP>>  [[VWGFinalStageDgrsComment]] <<COMMENT>>  [[VWGFinalStageDgrsFile]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 22 | Perform final CMM on JL0136186.  Upload any relevant images/files. | [[VWGFinalStageCMMTech]] <<SRF>>  [[VWGFinalStageCMMTime]] <<TIMESTAMP>>  [[VWGFinalStageCMMComment]] <<COMMENT>>  [[VWGFinalStageCMMEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFinalStageCMMEmail]] {{VHOM Traveller Final CMM Update}} <<EMAILSUBJ>>  [[VWGFinalStageCMMEmail]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| 23 | Check Acceptance of Part.  Upload any relevant images/files. | [[VWGFinalComment]] <<COMMENT>>  [[VWGFinalEmail]] {{SHANMUG}} <<EMAIL>>  [[VWGFinalEmail]] {{VHOM Traveller Final Update}} <<EMAILSUBJ>>  [[VWGFinalEmail]] <<FILEUPLOAD>> |