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| Traveler Title | FPC Waveguide Fabrication Traveler | | | |
| Traveler Abstract | Outlines the inspection and fabrication steps for the FPC Waveguide Assembly for the EIC 197MHz Crab Cavity Prototype | | | |
| Traveler ID | EIC197-FAB-FPCWV-ASSY | | | |
| Traveler Revision | R1 | | | |
| Traveler Author | JACQUESB | | | |
| Traveler Date | 29-Aug-24 | | | |
| NCR Informative Emails | AREILLY,GEORGED,MOSBY,KDAVIS | | | |
| NCR Dispositioners | HUQUE,JACQUESB,BUTTLES | | | |
| D3 Emails | HUQUE,JACQUESB,BUTTLES,KDAVIS,GEORGED,MOSBY,AREILLY | | | |
| Approval Names | J. BARSIMANTOV | Approval Names | J. BARSIMANTOV | Approval Names |
| Approval Signatures |  | Approval Signatures |  | Approval Signatures |
| Approval Dates |  | Approval Dates |  | Approval Dates |
| Approval Title | Author | Approval Title | Author | Approval Title |

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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. | | | |
| [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download) | [JL0127968](https://misportal.jlab.org/jlabDocs/documents/162300/download) | [JL0132924](https://misportal.jlab.org/jlabDocs/documents/167569/download) | [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download) | [JL0140820](https://misportal.jlab.org/jlabDocs/documents/184800/download) |
| [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download) | [JL0135333](https://misportal.jlab.org/jlabDocs/documents/179213/download) | [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download) | [JL0148259](https://misportal.jlab.org/jlabDocs/documents/183939/download) | [JL0141293](https://misportal.jlab.org/jlabDocs/documents/179217/download) |
| [JL0141292](https://misportal.jlab.org/jlabDocs/documents/179218/download) | [JL0136178](https://misportal.jlab.org/jlabDocs/documents/180704/download) | [JL0141291](https://misportal.jlab.org/jlabDocs/documents/179224/download) | [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download) | [JL0143010](https://misportal.jlab.org/jlabDocs/documents/183839/download) |
| [11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download) | [Fabrication Plan](https://jeffersonlab.sharepoint.com/:p:/r/sites/EICPartnerProject-TJNAF/Accelerator/RF%20Systems/Cryomodules/197%20MHz%20DVC/Cavity%20Fabrication%20Files/Fabrication%20Plans/FPC%20Waveguide%20Fabrication%20Plan.pptx?d=w94656b4829314df6b35f32c128d257cb&csf=1&web=1&e=2CmWwT) |  |  |  |

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

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| Step No. | Instructions | Data Input |
| PART IDENTIFICATION | | |
| 0 | Enter Serial Number of Finished Part   |  |  |  | | --- | --- | --- | | **STEPS** | **WORK CENTER AREAS** | **ACTIONS** | | 1 | MACHSHOP | Part Forming | | 2 | MACHSHOP | Part Machining | | 3 | CHEM | BCP | | 4 | EBW | EBW | | 5 | CMA | Leak Check | | 6 | MACHSHOP | Part Machining | | 7 | CHEM | DEGR | | 8 | INSP | CMM | | 9 | MACHSHOP | Part Machining | | 10 | MACHSHOP | Part Machining | | 11 | CHEM | BCP | | 12 | EBW | EBW | | 13 | CMA | Leak Check | | 14 | MACHSHOP | Part Machining | | 15 | CHEM | BCP | | 16 | EBW | EBW | | 17 | CMA | Leak Check | | 18 | MACHSHOP | Part Machining | | 19 | CHEM | DEGR | | 20 | INSP | CMM | | [[FPCWVSN]] << FPCWVSN>> |

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| Step No. | Instructions | Data Input |
| FORMING | | |
| 1 | Form . [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download) (x2) | [[MachTech1]] <<SRF>>  [[MachTime1]] <<TIMESTAMP>>  [[MachJobNumber1]] <<INTEGER>>  [[MachComm1]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 2 | Machine [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download) | [[MachTech2]] <<SRF>>  [[MachTime2]] <<TIMESTAMP>>  [[MachJobNumber2]] <<INTEGER>>  [[MachComm2]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 3a | BCP weld region to a depth of 15 microns part [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech2]] <<SRFCVP>>  [[ChemTime2]] <<TIMESTAMP>>  [[ChemComm2]] <<COMMENT>>  [[ChemFile2]] <<FILEUPLOAD>> |
| 3b | BCP weld region to a depth of 15 microns part [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech3]] <<SRFCVP>>  [[ChemTime3]] <<TIMESTAMP>>  [[ChemComm3]] <<COMMENT>>  [[ChemFile3]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| EBW | | |
| 4 | Using fixture [JL0140820](https://misportal.jlab.org/jlabDocs/documents/184800/download), EBW [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download) to [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download) and [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download) to create part [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download) | [[FPCWVSN]] << FPCWVSN>>  [[InsTech1]] <<SRF>>  [[InsTime1]] <<TIMESTAMP>>  [[InsComm1]] <<COMMENT>>  [[InsFile1]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| LEAK CHECK | | |
| 5 | Leak check the assembly ([JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download)) in accordance with [11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download) Vendor Standard Helium Leak Check Procedure  Upload any relevant images/comments | [[VacTech1]] <<SRF>>  [[VacTime1]] <<TIMESTAMP>>  [[VacPass1]] <<YESNO>>  [[VacComm1]] <<COMMENT>>  [[VacFile1]] <<FILEUPLOAD>>  [[VacMail1]] {{jacquesb}} <<EMAIL>>  [[VacMail1]] {{ Leak check on [JL0136175](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 6 | Machine the ends of the waveguide [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download) | [[MachTech3]] <<SRF>>  [[MachTime3]] <<TIMESTAMP>>  [[MachJobNumber3]] <<INTEGER>>  [[MachComm3]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 7 | Degrease [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure  Upload any relevant photos and/or comments | [[ChemTech4]] <<SRF>>  [[ChemTime4]] <<TIMESTAMP>>  [[ChemComm4]] <<COMMENT>>  [[ChemFile4]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| DIMENSIONAL INSPECTION | | |
| 8 | Verify dimensions in red. | [[DimensionInspTech2]] <<SRF>>  [[DimensionInspDate2]] <<TIMESTAMP>>  [[DimensionInspComment2]] <<COMMENT>>  [[DimensionInspFile2]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 9 | Machine [JL0135333](https://misportal.jlab.org/jlabDocs/documents/179213/download) | [[MachTech4]] <<SRF>>  [[MachTime4]] <<TIMESTAMP>>  [[MachJobNumber4]] <<INTEGER>>  [[MachComm4]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 10 | Machine [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download) | [[MachTech5]] <<SRF>>  [[MachTime5]] <<TIMESTAMP>>  [[MachJobNumber5]] <<INTEGER>>  [[MachComm5]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 11a | BCP weld region to a depth of 15 microns part [JL0135333](https://misportal.jlab.org/jlabDocs/documents/179213/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech4]] <<SRFCVP>>  [[ChemTime4]] <<TIMESTAMP>>  [[ChemComm4]] <<COMMENT>>  [[ChemFile4]] <<FILEUPLOAD>> |
| 11b | BCP weld region to a depth of 15 microns part [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech5]] <<SRFCVP>>  [[ChemTime5]] <<TIMESTAMP>>  [[ChemComm5]] <<COMMENT>>  [[ChemFile5]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| EBW | | |
| 12 | Using fixture [JL0148259](https://misportal.jlab.org/jlabDocs/documents/183939/download), EBW [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download)to [JL0135333](https://misportal.jlab.org/jlabDocs/documents/179213/download) and [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download)to create part [JL0141293](https://misportal.jlab.org/jlabDocs/documents/179217/download) | [[FPCWVSN]] << FPCWVSN>>  [[InsTech3]] <<SRF>>  [[InsTime3]] <<TIMESTAMP>>  [[InsComm3]] <<COMMENT>>  [[InsFile3]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| LEAK CHECK | | |
| 13 | Leak check the assembly ([JL0141293](https://misportal.jlab.org/jlabDocs/documents/179217/download)) in accordance with [11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download) Vendor Standard Helium Leak Check Procedure  Upload any relevant images/comments | [[VacTech2]] <<SRF>>  [[VacTime2]] <<TIMESTAMP>>  [[VacPass2]] <<YESNO>>  [[VacComm2]] <<COMMENT>>  [[VacFile2]] <<FILEUPLOAD>>  [[VacMail2]] {{jacquesb}} <<EMAIL>>  [[VacMail2]] {{ Leak check on [JL0141293](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 14 | Machine the FPC Port on [JL0141293](https://misportal.jlab.org/jlabDocs/documents/179217/download) to create part [JL0141292](https://misportal.jlab.org/jlabDocs/documents/179218/download) | [[MachTech5]] <<SRF>>  [[MachTime5]] <<TIMESTAMP>>  [[MachJobNumber5]] <<INTEGER>>  [[MachComm5]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 15a | BCP weld region to a depth of 15 microns part [JL0141292](https://misportal.jlab.org/jlabDocs/documents/179218/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech6]] <<SRFCVP>>  [[ChemTime6]] <<TIMESTAMP>>  [[ChemComm6]] <<COMMENT>>  [[ChemFile6]] <<FILEUPLOAD>> |
| 15b | BCP weld region to a depth of 15 microns part [JL0136178](https://misportal.jlab.org/jlabDocs/documents/180704/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure | [[ChemTech7]] <<SRFCVP>>  [[ChemTime7]] <<TIMESTAMP>>  [[ChemComm7]] <<COMMENT>>  [[ChemFile7]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| EBW | | |
| 16 | Using fixture [JL0143010](https://misportal.jlab.org/jlabDocs/documents/183839/download), EBW [JL0141292](https://misportal.jlab.org/jlabDocs/documents/179218/download) to [JL0136178](https://misportal.jlab.org/jlabDocs/documents/180704/download) to create part [JL0141291](https://misportal.jlab.org/jlabDocs/documents/179224/download) | [[FPCWVSN]] << FPCWVSN>>  [[InsTech4]] <<SRF>>  [[InsTime4]] <<TIMESTAMP>>  [[InsComm4]] <<COMMENT>>  [[InsFile4]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| LEAK CHECK | | |
| 17 | Leak check the assembly ([JL0141291](https://misportal.jlab.org/jlabDocs/documents/179224/download)) in accordance with [11141-S-0033](https://misportal.jlab.org/jlabDocs/documents/70285/download) Vendor Standard Helium Leak Check Procedure  Upload any relevant images/comments | [[VacTech2]] <<SRF>>  [[VacTime2]] <<TIMESTAMP>>  [[VacPass2]] <<YESNO>>  [[VacComm2]] <<COMMENT>>  [[VacFile2]] <<FILEUPLOAD>>  [[VacMail2]] {{jacquesb}} <<EMAIL>>  [[VacMail2]] {{ Leak check on [JL0141291](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

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| Step No. | Instructions | Data Input |
| MACHINING | | |
| 18 | Machine the ends of [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download) | [[MachTech5]] <<SRF>>  [[MachTime5]] <<TIMESTAMP>>  [[MachJobNumber5]] <<INTEGER>>  [[MachComm5]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 19 | Degrease [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download)  According to [CP-AUP-CAV-CHEM-ACID](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-260914/CP-AUP-CAV-CHEM-ACID-R2(2).pdf) Acid Etching Proceedure  Upload any relevant photos and/or comments | [[ChemTech8]] <<SRF>>  [[ChemTime8]] <<TIMESTAMP>>  [[ChemComm8]] <<COMMENT>>  [[ChemFile8]] <<FILEUPLOAD>> |

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| Step No. | Instructions | Data Input |
| DIMENSIONAL INSPECTION | | |
| 20a | Verify dimensions in red. | [[SurfaceInspTech5]] <<SRF>>  [[SurfaceInspDate5]] <<TIMESTAMP>>  [[SurfaceInspComment5]] <<COMMENT>>  [[SurfaceInspFile5]] <<FILEUPLOAD>> |
| 20b | Verify perpendicularity | [[PerpendicularityInspTech6]] <<SRF>>  [[PerpendicularityInspDate6]] <<TIMESTAMP>>  [[PerpendicularityInspComment6]] <<COMMENT>>  [[PerpendicularityInspFile6]] <<FILEUPLOAD>> |
| 20c |  | [[FPCDimInspTech7]] <<SRF>>  [[FPCDimInspDate7]] <<TIMESTAMP>>  [[FPCDimInspComment7]] <<COMMENT>>  [[FPCDimInspFile7]] <<FILEUPLOAD>> |

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| **Step No** | **Instructions** | **Data Inputs** |
| TECHNICAL REPRESENTATIVE | | |
| 21 | Enter SRF OPS Shipping form number and Purchase Requisition number for ultrasonic testing. | [[TechRep]] <<SRF>>  [[ShippingFormNumber]] <<INTEGER>>  [[PurchaseRequestNumber]] <<INTEGER>> |