|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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-FPCWA-ASSY | | | |
| Traveler Revision | R1 | | | |
| Traveler Author | Jacques Barsimantov | | | |
| Traveler Date | 30-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 | A. OBRIEN | J. BUTTLES | N. HUQUE |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Group Leader | Project Manager |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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) | [Dogbone Field Probe Fabrication Plan](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-289437/Dogbone%20Field%20Probe%20Fabrication%20Plan.pptx) | [FPC Waveguide Fabrication Plan](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-289436/FPC%20Waveguide%20Fabrication%20Plan.pptx) | [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) |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 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 | | | | [[FPCWASN1]] <<FPCWASN>> |
| Step No. | | Instructions | Data Input | |
| FORMING | | | | |
| 1 | | Form . [JL0140359](https://misportal.jlab.org/jlabDocs/documents/179215/download) (x2) | [[MachFormTech]] <<SRF>>  [[MachFormTime]] <<TIMESTAMP>>  [[MachFormJobNumber]] <<INTEGER>>  [[MachFormComm]] <<COMMENT>> | |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| MACHINING | | |
| 2 | Machine [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download) | [[MachStiffenerTech]] <<SRF>>  [[MachStiffenerTime]] <<TIMESTAMP>>  [[MachStiffenerJobNumber]] <<INTEGER>>  [[MachStiffenerComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| 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 [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[Chem\_DBH\_BCPTech]] <<SRFCVP>>  [[Chem\_DBH\_BCPTime]] <<TIMESTAMP>>  [[Chem\_DBH\_BCPComm]] <<COMMENT>>  [[Chem\_DBH\_BCPFile]] <<FILEUPLOAD>> |
| 3b | BCP weld region to a depth of 15 microns part [JL0135516](https://misportal.jlab.org/jlabDocs/documents/179214/download)  According to [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[Chem\_DBS\_BCPTech]] <<SRFCVP>>  [[Chem\_DBS\_BCPTime]] <<TIMESTAMP>>  [[Chem\_DBS\_BCPComm]] <<COMMENT>>  [[Chem\_DBS\_BCPFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| 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) | [[FPCWASN2]] <<FPCWASN>>  [[WeldStiffenerTech]] <<SRF>>  [[WeldStiffenerTime]] <<TIMESTAMP>>  [[WeldStiffenerComm]] <<COMMENT>>  [[WeldStiffenerFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| **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 | [[VacStiffenerTech]] <<SRF>>  [[VacStiffenerTime]] <<TIMESTAMP>>  [[VacStiffenerPass]] <<YESNO>>  [[VacStiffenerComm]] <<COMMENT>>  [[VacStiffenerFile]] <<FILEUPLOAD>>  [[VacStiffenerMail]] {{jacquesb}} <<EMAIL>>  [[VacStiffenerMail]] {{ Leak check on [JL0136175](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| MACHINING | | |
| 6 | Machine the ends of the waveguide [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download) | [[MachWaveGEndsTech]] <<SRF>>  [[MachWaveGEndsTime]] <<TIMESTAMP>>  [[MachWaveGEndsJobNumber]] <<INTEGER>>  [[MachWaveGEndsComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 7 | Degrease [JL0136175](https://misportal.jlab.org/jlabDocs/documents/179216/download)  According to [SRF-MSPR-CHEM-FBH-DEGR-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261899/SRF-MSPR-CHEM-FBH-DEGR-R1.pdf)  Upload any relevant photos and/or comments | [[ChemDgrsTech]] <<SRF>>  [[ChemDgrsTime]] <<TIMESTAMP>>  [[ChemDgrsComm]] <<COMMENT>>  [[ChemDgrsFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| DIMENSIONAL INSPECTION | | |
| 8 | Verify dimensions in red.  Diagram  Description automatically generated with medium confidence | [[DimensionInspTech]] <<SRF>>  [[DimensionInspDate]] <<TIMESTAMP>>  [[DimensionInspComment]] <<COMMENT>>  [[DimensionInspFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| MACHINING | | |
| 9 | Machine [JL0135333](https://misportal.jlab.org/jlabDocs/documents/179213/download) | [[MachFPCWGEndTech]] <<SRF>>  [[MachFPCWGEndTime]] <<TIMESTAMP>>  [[MachFPCWGEndJobNumber]] <<INTEGER>>  [[MachFPCWGEndComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| MACHINING | | |
| 10 | Machine [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download) | [[MachFPCDBTransTech]] <<SRF>>  [[MachFPCDBTransTime]] <<TIMESTAMP>>  [[MachFPCDBTransJobNumber]] <<INTEGER>>  [[MachFPCDBTransComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| 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 [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[WGEChemBCPTech]] <<SRFCVP>>  [[WGEChemBCPTime]] <<TIMESTAMP>>  [[WGEChemBCPComm]] <<COMMENT>>  [[WGEChemBCPFile]] <<FILEUPLOAD>> |
| 11b | BCP weld region to a depth of 15 microns part [JL0140930](https://misportal.jlab.org/jlabDocs/documents/187378/download)  According to [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[FPCDBTChemBCPTech]] <<SRFCVP>>  [[FPCDBTChemBCPTime]] <<TIMESTAMP>>  [[FPCDBTChemBCPComm]] <<COMMENT>>  [[DBTChemBCPFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| 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) | [[FPCWASN3]] <<FPCWASN>>  [[WeldFPCPreMachTech]] <<SRF>>  [[WeldFPCPreMachTime]] <<TIMESTAMP>>  [[WeldFPCPreMachComm]] <<COMMENT>>  [[WeldFPCPreMachFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| **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 | [[VacFPCPreMachTech]] <<SRF>>  [[VacFPCPreMachTime]] <<TIMESTAMP>>  [[VacFPCPreMachPass]] <<YESNO>>  [[VacFPCPreMachComm]] <<COMMENT>>  [[VacFPCPreMachFile]] <<FILEUPLOAD>>  [[VacFPCPreMachMail]] {{jacquesb}} <<EMAIL>>  [[VacFPCPreMachMail]] {{ Leak check on [JL0141293](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

|  |  |  |
| --- | --- | --- |
| 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) | [[MachFPCPortTech]] <<SRF>>  [[MachFPCPortTime]] <<TIMESTAMP>>  [[MachFPCPortJobNumber]] <<INTEGER>>  [[MachFPCPortComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| 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 [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[FPCWGWChemBCPTech]] <<SRFCVP>>  [[FPCWGWChemBCPTime]] <<TIMESTAMP>>  [[FPCWGWChemBCPComm]] <<COMMENT>>  [[FPCWGWChemBCPFile]] <<FILEUPLOAD>> |
| 15b | BCP weld region to a depth of 15 microns part [JL0136178](https://misportal.jlab.org/jlabDocs/documents/180704/download)  According to [SRF-MSPR-CHEM-NB-ACID-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261723/SRF-MSPR-CHEM-NB-ACID-R1.pdf) Acid Etching Proceedure | [[FPCPTChemBCPTech]] <<SRFCVP>>  [[FPCPTChemBCPTime]] <<TIMESTAMP>>  [[FPCPTChemBCPComm]] <<COMMENT>>  [[FPCPTChemBCPFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| 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) | [[FPCWASN4]] <<FPCWASN>>  [[WeldFPCWATech]] <<SRF>>  [[WeldFPCWATime]] <<TIMESTAMP>>  [[WeldFPCWAComm]] <<COMMENT>>  [[WeldFPCWAFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| **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 | [[VacFPCWATech]] <<SRF>>  [[VacFPCWATime]] <<TIMESTAMP>>  [[VacFPCWAPass]] <<YESNO>>  [[VacFPCWAComm]] <<COMMENT>>  [[VacFPCWAFile]] <<FILEUPLOAD>>  [[VacFPCWAMail]] {{jacquesb}} <<EMAIL>>  [[VacFPCWGMail]] {{ Leak check on [JL0141291](https://misportal.jlab.org/jlabDocs/documents/175540/download) has finished }} <<EMAILSUBJ>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| MACHINING | | |
| 18 | Machine the ends of [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download) | [[MachFPCWATech]] <<SRF>>  [[MachFPCWATime]] <<TIMESTAMP>>  [[MachFPCWAJobNumber]] <<INTEGER>>  [[MachFPCWAComm]] <<COMMENT>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| CHEMISTRY | | |
| 19 | Degrease [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download)  According to [SRF-MSPR-CHEM-FBH-DEGR-R1](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261899/SRF-MSPR-CHEM-FBH-DEGR-R1.pdf) Upload any relevant photos and/or comments | [[ChemDegrTech]] <<SRF>>  [[ChemDegrTime]] <<TIMESTAMP>>  [[ChemDegrComm]] <<COMMENT>>  [[ChemDegrFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| Step No. | Instructions | Data Input |
| DIMENSIONAL INSPECTION | | |
| 20a | Verify dimensions in red.  Diagram, engineering drawing  Description automatically generated  Text  Description automatically generated | [[SurfaceInspTech]] <<SRF>>  [[SurfaceInspDate]] <<TIMESTAMP>>  [[SurfaceInspComment]] <<COMMENT>>  [[SurfaceInspFile]] <<FILEUPLOAD>> |
| 20b | Diagram, engineering drawing  Description automatically generated  Verify perpendicularity | [[PerpendicularityInspTech]] <<SRF>>  [[PerpendicularityInspDate]] <<TIMESTAMP>>  [[PerpendicularityInspComment]] <<COMMENT>>  [[PerpendicularityInspFile]] <<FILEUPLOAD>> |
| 20c | Diagram, engineering drawing  Description automatically generated | [[FPCDimInspTech]] <<SRF>>  [[FPCDimInspDate]] <<TIMESTAMP>>  [[FPCDimInspComment]] <<COMMENT>>  [[FPCDimInspFile]] <<FILEUPLOAD>> |

|  |  |  |
| --- | --- | --- |
| **Step No** | **Instructions** | **Data Inputs** |
| TECHNICAL REPRESENTATIVE | | |
| 21 | Engrave SN on [JL0136179](https://misportal.jlab.org/jlabDocs/documents/182975/download) | [[TechRep]] <<SRF>>  [[ShippingFormNumber]] <<INTEGER>>  [[PurchaseRequestNumber]] <<INTEGER>> |