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| Traveler Title | C100R Cavity Assembly |
| Traveler Abstract | The following traveler documents the steps for the first of two clean room cavity assemblies for VTA qualification of C100 cavities for the 12GeV project. |
| Traveler ID | C100R-CAV-ASSY |
| Traveler Revision  | R3 |
| Traveler Author | C. Dreyfuss |
| Traveler Date | 16-Aug-23 |
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| NCR Dispositioners | forehand,ganey,kdavis |
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| 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. |
| [Ionized nitrogen parts cleaning procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-43205/Ionized%20nitrogen%20cleaning%5B1%5D.pdf) | [Radial wedge flange installation procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-43206/Radial%20wedge%20flange%20clamp%20installation%5B1%5D.pdf) | Cavity tooling VTA Assembly drawing[CRM1207015-0100](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-43207/CRM1207015-0100%5B1%5D.pdf) | [C100 1st assembly procedure for VTA qualification](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-43208/CP-C100-CAV-ASSY-R3.docx-1%5B1%5D%5B1%5D.pdf) |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |
| R2 | Made changes to Steps 1, 3 and 4 |
| R3 | Merged C100R-CAV-ASSY2 into traveler |

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| Step No. | Instructions | Data Input |
| 1 | Record Cavity Serial NumberOperators loginRecord dateUse the D3 button at the top of the page to record a discrepancy or deviation that occurred before, during, or after the assembly. | [[CAVSN]] <<CAVSN>>[[CavCouponNo]] <<FLOAT>>[[Assy1Tech1]] <<SRFCVP>>[[Assy1Tech2]] <<SRFCVP>>[[Assy1Tech3]] <<SRFCVP>>[[RecordDate]] <<TIMESTAMP>>[[AssemblyType]] {{First,Second,Full,Other}} <<SELECT>> |
| 2 | Inspect the FPC flange. The flange must be free of visible scratches and other surface imperfections in the seal path area. Verify that the flange has been lapped and there are no visible traces of gasket material from a previous assembly. Record any visual inspection notes in the comment box to the right.Inspect the tophat flange. The flange must be free of visible scratches and other surface imperfections in the seal path area. Verify that the flange has been lapped and there are no visible traces of gasket material from a previous assembly. Record any visual inspection notes in the comment box to the right. | [[FPCFlangeLapped]] <<YESNO>>[[TophatFlangeLapped]] <<YESNO>>[[Assy1Tech4]] <<SRFCVP>>[[Comments1]] <<COMMENT>> |
| 3 | Perform first cavity assembly as per the [C100 1st assembly procedure for VTA qualification](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-43026/CP-C100-CAV-ASSY-R3.docx-1%5B1%5D.pdf).Record length of field probe antenna as installed to cavity.Use the comment box to the right to record notes, etc. regarding this assembly. | [[FieldProbeLength]] <<FLOAT>>[[Comments2]] <<COMMENT>>[[Assy1Tech5]] <<SRFCVP>> |
| 4 | Record serial numbers:Use the diagram below for HOM identification.C:\Documents and Settings\castagno\Desktop\Nomenclature_C100.jpg | [[VTATHSN]] <<VTATHSN>>[[FPFTSN]] <<FPFTSN>>[[FPCouponNo]] <<FLOAT>>[[PositionA\_HMFTSN]] <<HMFTSN>>[[HOMACouponNo]] <<FLOAT>>[[PositionB\_HMFTSN]] <<HMFTSN>>[[HOMBCouponNo]] <<FLOAT>>[[Comments3]] <<COMMENT>>[[Assy2Tech1]] <<SRFCVP>> |
| 5 | Perform final cavity assembly as per the [C100 final cavity assembly procedure for VTA qualification](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261235/C100R-PR-CLNRM-CAV-ASSY2-R1.pdf).Use the comment box at the right to record notes, etc. regarding this assembly. Record tophat/input probe set serial number. | [[Assy2Tech2]] <<SRFCVP>>[[Assy2Tech3]] <<SRFCVP>>[[Assy2Tech4]] <<SRFCVP>>[[FinalAssyComments]] <<COMMENT>>[[Tophat\_InputProbeSet]] <<SN>> |
| 6 | Install the cavity into the test stand as per the [Cavity installation into test stand procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-261226/C100R-PR-CLNRM-CAV-TSTD-R1.pdf).Record the test stand serial #. | [[Assy2Tech4]] <<SRFCVP>>[[Assy2Tech5]] <<SRFCVP>>[[Assy2Tech6]] <<SRFCVP>>[[VTATSSN]] <<VTATSSN>>[[CavInstallToTestStandComments]] <<COMMENT>> |
| 7 | Evacuate the cavity as per the [Clean Room Production Pump System Operation](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-251963/SRF-MSPR-CLNRM-PUMP-R1.pdf).Record date and time of cavity evacuation.Record date and time turbo pump was established to system.Record total system pressure in mbar after turbo pump is operating at full speed. Allow the cavity to pump overnight. | [[Assy2Tech7]] <<SRFCVP>>[[SlowEvacStart]] <<TIMESTAMP>>[[TurboStart]] <<TIMESTAMP>>[[TotalPressure1]] <<SCINOT>>mbar |
| 8 | After cavity has pumped overnight, record total system pressure in mbar.Leak test the cavity as per the [RGA Leak Test Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-251183/SRF-MSPR-CLNRM-LEAK-R1.pdf). If cavity is leak tight, save and upload the following files: Analog scan with multiplier on (.rga file), leak test summary with graph (.docx file or .jpg), RGA leak test scan (.rga file).If the cavity is not leak tight, record the leak rate and contact your supervisor or lead technician. * If there is a leak on any flange other than the FPC, intiate a D3.
* If the leak is only at the FPC flange AND the leak rate is greater than or equal to 5E-7 Torr L/s, initiate a D3.
* Note: if the leak is isolated to the FPC flange AND the leak rate is 5E-7 Torr L/s or better, then no D3 is required.

The leak tested cavity can now be transported to the VTA mezzanine. | [[TotalPressure2]] <<SCINOT>>mbar[[Assy2Tech8]] <<SRFCVP>>[[IsCavityLeakTight]] <<YESNO>>[[LeakRate]] <<SCINOT>> Torr L/s[[AnalogScan]] <<FILEUPLOAD>>[[SummaryFile]] <<FILEUPLOAD>>[[LeakTestScan]] <<FILEUPLOAD>>[[LeakTestComment]] <<COMMENT>> |