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| Traveler Title | Cavity Pair Disassembly & Sampling Traveler |
| Traveler Abstract | This traveler outlines the steps necessary to disassemble and sample for particulates a C20 Cryomodule. It captures component serial #’s during the disassembly of cavity pairs for cryomodule rework.Work within this Traveler is to be performed by trained and authorized personnel ONLY. All cavity pair components & materials shall be kept together and contained until they have been surveyed and released by RADCON. **\*\* Radiological controls are a critical component of the cryomodule & cavity pairs rework disassembly and assembly process. Dose rate, as well as contamination surveys (where indium gaskets or seals are present) shall be performed and analyzed, with information communicated to all involved personnel. Results will be recorded at traveler hold points. RW-II training will be required where contamination is identified\*\*** |
| Traveler ID | C20\_50-CPR-DISA |
| Traveler Revision  | R1 |
| Traveler Author | Valente-Feliciano |
| Traveler Date | 27-Feb-2020 |
| NCR Informative Emails | forehand,kdavis,areilly |
| NCR Dispositioners | A-M Valente-Feliciano |
| D3 Emails |  |
| Approval Names | A-M Valente-Feliciano | D. Forehand | K. Macha/K. Davis | D. Hamlette |
| Approval Signatures |  |  |  |  |
| Approval Dates |  |  |  |  |
| Approval Title | Author | Reviewer | Project Manager | Radcon |

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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. |
| [Cavity Pair Disassembly drawing](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-72136/Cavity_Pair_Disassembly_Drawing.jpg) | [C20-C50 Indium Joint Locations](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-205790/C20-C50%20Indium%20Joint%20Locations.pptx) | [C20-C50 RADCON Briefing Slides](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-204610/C2050_reworkbrief.pptx) | [RADCON Control Doc](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-205753/C2050_Radcon%20RAM%20Control%20Doc2019.docx)\*\*\*needs updated version for cavity pair |  |
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| Revision Note |  |
| R1 | Initial release of this Traveler. |

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| Step No. | Instructions | Data Input |
| \*Note: | During the Cryomodule re-work process, there will be some items labeled as “Radioactive Material”. **Radioactive Material (RAM)** is defined in the RadCon manual as any activated material, equipment or system component with radiation levels distinguishable from background. The following guidelines are to be adhered to when handling RAM in order to follow Radcon requirements:* There are no requirements for dosimetry for Radioactive Material Areas unless otherwise notified by a member of the RCD.
* Persons must be Radiation Worker I qualified to handle RAM.
* The RAM tag must accompany the item at all times with the following exceptions. Cleaning, heating or any process in which the tag will impede that process or the tag could be potentially damaged or destroyed.
* When performing processes listed above, the tag is to be removed by personnel performing the task and placed on the RAM tag board located in the area.
* Each component removed from the cavity pair needs to be tagged with a Radcon coupon, recorded on the dedicated list.
* All hardware (bolts, nuts, gaskets…) needs to be gathered in a Rad waste bag.
* Once task is complete, the tag is to be placed back on the material/equipment.
* Eating, drinking or smoking is not permitted in Radioactive Material Areas

Remove all tags prior to installation of cryomodule in the Accelerator**Tasks associated with this traveler will be performed in the designated area of the clean room.** |  |
| 1 | Enter cavity pair serial #’s.  | [[CAVSN\_A]] <<CAVSN>>[[CAVSN\_B]] <<CAVSN>>[[InitialDate]] <<TIMESTAMP>>[[InitialTechnician]] <<SRFCVP>> |
| 2 | Ensure the end dish edges are taped to prevent exposure to sharp edges | [[EndDishesTaped]] <<YESNO>>[[EndDishesTapedComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 3 | Record the existing serial #’s of each component, and choose the new serial number from the drop-down list. If the old and new serial numbers are different, engrave the part with the new number that was chosen in the drop-down list. Print and record all existing cavity/component data on the [Cavity Pair Disassembly drawing](http://jlabdoc.jlab.org/docushare/dsweb/Get/File-9530/5cell_pair_with_text.jpg). Any component that has been tagged as RAM shall be noted in the last column. |
| **Part** | **Original Serial No** | **Standardized Serial No** | **Part RAM?** |
| CAVITY A |  | [[Cavity\_A]] <<CAVSN>> | [[Cavity\_A\_RAM]] <<YESNO>> |
| CAVITY B |  | [[Cavity\_B]] <<CAVSN>> | [[Cavity\_B\_RAM]] <<YESNO>> |
| DOGLEG A | [[DGLG\_A\_Orig]] <<SN>> | [[Dogleg\_A]] <<DGLGSN>> | [[Dogleg\_A\_RAM]] <<YESNO>> |
| DOGLEG B | [[DGLG\_B\_Orig]] <<SN>> | [[Dogleg\_B]] <<DGLGSN>> | [[Dogleg\_B\_RAM]] <<YESNO>> |
| HOM A | [[HOML\_A\_Orig]] <<SN>> | [[HOML\_A]] <<HOMLSN>> | [[HOML\_A\_RAM]] <<YESNO>> |
| HOM B | [[HOML\_B\_Orig]] <<SN>> | [[HOML\_B]] <<HOMLSN>> | [[HOML\_B\_RAM]] <<YESNO>> |
| HOM C | [[HOML\_C\_Orig]] <<SN>> | [[HOML\_C]] <<HOMLSN>> | [[HOML\_C\_RAM]] <<YESNO>> |
| HOM D | [[HOML\_D\_Orig]] <<SN>> | [[HOML\_D]] <<HOMLSN>> | [[HOML\_D\_RAM]] <<YESNO>> |
| ELBOW A | [[HOME\_A\_Orig]] <<SN>> | [[HOME\_A]] <<HOMESN>> | [[HOME\_A\_RAM]] <<YESNO>> |
| ELBOW B | [[HOME\_B\_Orig]] <<SN>> | [[HOME\_B]] <<HOMESN>> | [[HOME\_B\_RAM]] <<YESNO>> |
| ELBOW C | [[HOME\_C\_Orig]] <<SN>> | [[HOME\_C]] <<HOMESN>> | [[HOME\_C\_RAM]] <<YESNO>> |
| ELBOW D | [[HOME\_D\_Orig]] <<SN>> | [[HOME\_D]] <<HOMESN>> | [[HOME\_D\_RAM]] <<YESNO>> |
| INNER ADAPTER | [[Inner\_Adapter\_Orig]] <<SN>> | [[Inner\_Adapter]] <<INADSN>> | [[Inner\_Adapter\_RAM]] <<YESNO>> |
| END DISH A | [[End\_Dish\_A\_Orig]] <<SN>> | [[End\_Dish\_A]] <<ENDDSN>> | [[End\_Dish\_A\_RAM]] <<YESNO>> |
| END DISH B | [[End\_Dish\_B\_Orig]] <<SN>> | [[End\_Dish\_B]] <<ENDDSN>> | [[End\_Dish\_B\_RAM]] <<YESNO>> |
| FIELD PROBE A | [[Field\_Probe\_A\_Orig]] <<SN>> |  | [[Field\_Probe\_A\_RAM]] <<YESNO>> |
| FIELD PROBE B | [[Field\_Probe\_B\_Orig]] <<SN>> |  | [[Field\_Probe\_B\_RAM]] <<YESNO>> |
|  |  |  | [[PairDiagram]] <<FILEUPLOAD>>[[PairDiagramComment]] <<COMMENT>> |

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| Step No. | Instructions | Data Input |
| 4 | **\*\*\*Get authorization from RADCON to move cavity pair to from RMA storage area to the Production chemroom\*\*\*** | [[RadTech1]] <<RAD>>[[RadComment1]] <<COMMENT>>[[RadDate1]] <<TIMESTAMP>> |
| 5 | The cavity pair will be blown off prior entry in the Production chemroom, wiped down with Isopropyl and blown off again prior entry in the cleanroom via the Production chemroom path-thru | [[ChemistryTechnician]] <<SRFCVP>> |
| 6 | Set the cavity pair in the cleanroom designated area.Ensure the area and cavity pair are adequately clean.Prepare disassembly tooling, sampling tooling, supplies & samples, storage container for delicate components such as HOM loads.Prepare recording lists for particulate samples generated, cavity pair components and Radcon couponsLet the cleanroom area recover | [[SRFScientist]] <<SRF>>[[DisassemblyTechnician]] <<SRFCVP>> |
| 7 | Set an environmental witness sample prior starting disassembly and sampling tasks |  |
| 8 | \*\*\* **This tasks requires a Radcon technician to be present. Due to potential contamination generated by activated In seals, a real time RADCON survey needs to take place as the In seals are opened during the sampling and disassembly tasks. NO DISASSEMBLY without RADCON present.**\*\*\*Disassemble the cavity pair using the dedicated disassembly tools following the order set by the sampling protocol**. Do not remove the field probes at this time.** Use caution when removing the end dishes and HOMs. **HOM loads can only be removed by qualified personnel.**Cover/protect all flanges immediately after disassembly. Store all fasteners for later use or disposal. If the fasteners are deemed as RAM, place in appropriate container for Radcon.  | [[RadTech1]] <<RAD>>[[RadComment1]] <<COMMENT>>[[RadDate1]] <<TIMESTAMP>>[[SRFScientist]] <<SRF>>[[DisassemblyTechnician]] <<SRFCVP>>[[Fasteners\_RAM]] <<YESNO>> |
| 9 | \*\*\*Coordinate with RADCON for surveying and moving parts from Cleanroom to RMA area to accomplish the next task\*\*\* | [[RadTech1]] <<RAD>>[[RadComment1]] <<COMMENT>>[[RadDate1]] <<TIMESTAMP>> |
| 10 | **\*\*\*This tasks takes place in dedicated RMA area\*\*\***Remove the field probes for cavities which will morph from C20 to C75 geometry.Remove all indium and inspect all seal surfaces. Note any concerns. Cover/protect all flanges upon completion. Store cavities and all parts for processing and assembly. | [[IndiumTechnician]] <<SRFCVP>>[[IndiumComment]] <<COMMENT>>[[IndiumDate]] <<TIMESTAMP>> |
| 11 | Ceramic window assemblies shall be properly stored after RADCON survey. |  |
| 12 | Ensure that all RAM tagged parts are place in an appropriate RMA. |  |