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| **Traveler Title** | Recycled Waveguide & Waveguide Window Weldment Inspection |
| **Traveler Abstract** | This traveler is for inspection of the 12 GeV upgrade waveguides and waveguide window weldment. It includes a visual inspection before and after welding. Also, it includes a dimensional inspection. |
| **Traveler ID** | C100R-CAV-INSP-WGD-RCYC |
| **Traveler Revision**  | R2 |
| **Traveler Author** | Aaron DeKerlegand |
| **Traveler Date** | 9-Feb-2022 |
| **NCR Emails** | ganey, scott, forehand |
| **Approval Names** | Aaron DeKerlegand | Scott Williams | Tiffany Ganey |  |
| **Approval Signatures** |  |  |  |  |
| **Approval Date** |  |  |  |  |
| **Approval Title** | Author | 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. |
| 12 GeV Waveguide Assembly, [CRM1207070-0000](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41252/CRM1207070-0000%5B1%5D.pdf) | Large Waveguide Flange, [203047](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41253/203047%20REV.2%5B1%5D.pdf) | Small Waveguide Flange, [115120-1007](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41254/115120-1007%5B1%5D.pdf) | [Extent of Copper Plating Drawing](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41255/Copper-Plating%5B1%5D.pdf) | [Cleaning Procedure for the HTB Warm Waveguides](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41256/Cleaning%20Procedure%20for%20the%20HTB%20Warm%20Waveguides.docx) |
| Cleaning and Handling of U.H.V. Components, [22632-S-001](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41257/22632-S-001%5B1%5D.pdf) | Helium Leak Test Procedure for UHV Components, [22634-S-001](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41258/22634-S-001%5B1%5D.pdf) | Waveguide Copper Plating Specification, [115070-1001-RevD](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41259/115070-1001RevD%5B1%5D.pdf) | [JL0076419-A-C100 WELD WINDOW TO WAVEGUIDE](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-236375/JL0076419-A-C100%20WELD%20WINDOW%20TO%20WAVEGUIDE.pdf) | [JL0076778-A-MODIFIED ADAPTER WINDOW ASSEMBLY](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-236376/JL0076778-A-MODIFIED%20ADAPTER%20WINDOW%20ASSEMBLY.pdf) |

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| **Revision Note** |  |
| R1 | Initial release of this Traveler. |
| R2 | New step added. Step 4 final inspection added for window to waveguide weld assembly. Note – latest drawings JL0076419 and JL0076778 have been added as references in traveler. |

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| **Step No.** | **Instructions** | **Data Input** |
| 1 | **Note**: Follow the requirements of [22632-S-001](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-41257/22632-S-001%5B1%5D.pdf) (including wearing gloves) at all times when handling these components. Make sure that the faces of the flanges are protected from handling damage. **Note**: For this entire traveler, if any of the inspection items in this traveler are not as they should be, please generate either a D3 or an NCR, based on the inspector's judgment. Enter technician name:Enter date:Enter serial number of waveguide being inspected: | [[InspectionTech]] <<SRF>>[[InspectionDate]] <<TIMESTAMP>>[[WGDSN]] <<WGDSN>>[[VisualExamStart]] <<TIMESTAMP>>[[WGDCouponNo]] <<FLOAT>>[[WGDRadTag]] <<FLOAT>> |
| 2 | Upon receiving of Waveguide/Window subassembly, perform a leak check according to Spec. 11141-S-0029A. Leak rate should be less than 1 x 10-10 atm cc/sec of helium. Use appropriate tooling to ensure the bellows are not crushed. Leaktest should be performed as a subassembly as removed from module, allowing technician to leaktest both window & waveguige in one setup if possible. Note: Radcon’s involvement will be required when handling & relocating any tagged hardware.  | [[LeakCheckTech]] <<SRF>>[[LeakCheckDate]] <<TIMESTAMP>>[[LeakCheckPassed]]<<YESNO>>[[LeakCheckComment]] <<COMMENT>>[[LeakCheckFiles]] <<FILEUPLOAD>>[[LeakCheckStart]] <<TIMESTAMP>>[[LeakCheckEnd]] <<TIMESTAMP>> |

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| **Step No.** | **Instructions** | **Data Input** |
| 3 | **INITIAL INSPECTION****Note – This inspection page is for waveguide only (before waveguide weld assembly).** **After waveguide is disassembled from cryomodule a seal imprint will be present on the small flange. Small flange will require rework/machining. The small flange will be inspected on final page of traveler after rework occurs.** | [[Tech1]] <<SRF>>[[Date1]] <<TIMESTAMP>>[[Comment1]] <<COMMENT>>[File1]] <<FILEUPLOAD>> |
| Check bellows for structural integrity (kinks in metal). Verify the metal is not kinked, crimped, or damaged. **Are bellows okay?** | [[bellows1]] <<YESNO>> |
| Copper plating must be continuous and uniform, without blisters, flaking, gouges or other damage. Also, there should be no foreign material (fingerprints, excessive dust, oil traces, etc) on RF-exposed surfaces. **Copper plating okay?** | [[Plating1]] <<YESNO>> |
|  Check knife edge on large flange carefully. There should be no damage at all (including burrs, scratches, nicks). *Damage should be noted, but NCR is not required. This section of flange shall be welded to window assembly and re-inspected at later date.* **Knife edge okay?** | [[KnifeEdge1]] <<YESNO>> |
| Check o-ring groove on large flange for scratches, dings, or any other damage. **O-ring groove okay?** | [[oring1]] <<YESNO>> |
| There should be no unusual discoloration to the base material, especially around the welds. No unusual discoloration to copper other than minor oxidation. **Coloration okay?** | [[Coloration1]] <<YESNO>> |
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| **Step No.** | **Instructions** | **Data Input** |
| 4 | **FINAL INSPECTION – Weld Window to Waveguide assy**  **DWG # JL0076419**Note – This traveler page is post welding adapter window assembly and after small flange rework/machining.**\*Record serial number of modified adapter window assembly.** | [[Tech2]] <<SRF>>[[Date2]] <<TIMESTAMP>>[[WINSN]] <<WINSN>>[[Comment2]] <<COMMENT>>[File2]] <<FILEUPLOAD>> |
| Check bellows for structural integrity (kinks in metal). Verify the metal is not kinked, crimped, or damaged. **Are bellows okay?** | [[bellows2]] <<YESNO>> |
| Copper plating must be continuous and uniform, without blisters, flaking, or other damage. There should be no foreign material (fingerprints, excessive dust, oil traces, etc) on RF-exposed surfaces. **Copper plating okay?** | [[Plating2]] <<YESNO>> |
|  Visually check knife edge on modified adapter window assembly for burrs, dings, dents, etc. **Knife edge okay?** | [[KnifeEdge2]] <<YESNO>> |
| Check o-ring groove on large flange for scratches, dings, or any other damage. **O-ring groove okay?** | [[oring2]] <<YESNO>> |
| There should be no unusual discoloration to the base material, especially around the welds. No unusual discoloration to copper other than minor oxidation. **Coloration okay?** | [[Coloration2]] <<YESNO>> |
| Check small flange for damage, scratches, pits etc**. Small flange okay?** | [[Smallflange2]] <<YESNO>> |
|  | Measure the small flange to check flatness with the CMM. DWG#CRM1207070-0000 Flatness tolerance .003”**Small flange flatness within tolerance?** | [[Measurement1]] <<FLOAT>>[[Flatness1]] <<YESNO>> |
|  | Check surface finish of small flange with a profilometer. DWG#CRM1207070-0000 Finish 16 u inch or smoother.**Surface finish within tolerance?** | [[Measurement2]] <<FLOAT>>[[Finish2]] <<YESNO>> |