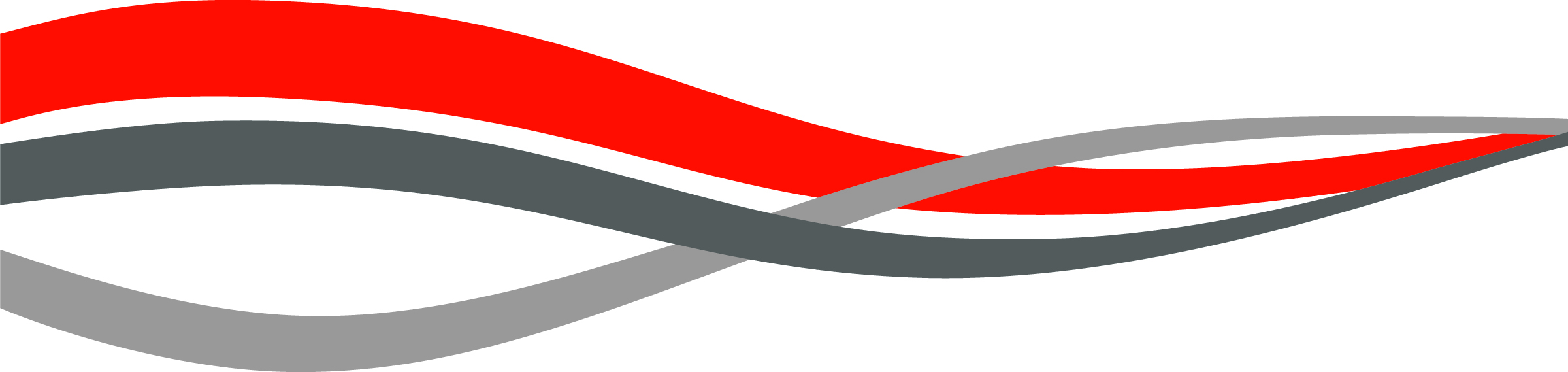
AutoHaul®

Project No: AUASTP48

AC - Battery Reconnection Procedure WMS

Locomotive # \_\_\_\_ \_\_\_\_



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**Acronyms/ Abbreviations used in this document:**

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| --- | --- | --- |
| **#** | **Acronym/ Abbreviation** | **Meaning** |
| **1** | WMS | Work Method Statement |

**Please read all of the detailed tasks below carefully.  Before commencing work either sign the back page or select ‘Accept’ on the tablet.**

**Prior to commencing the task a JHA must also be completed, reviewed and signed. Additionally a Take 5 must be conducted prior to commencing the task.**

**After completing each installation sub task ensure that you sign off each task as being completed in the WMS.**

**ANY DISCREPANCIES BETWEEN DRAWINGS/ WMS AND ACTUAL INSTALLATION MUST BE RAISED WITH YOUR SUPERVISOR BEFORE CONTINUING WORK.**

**ENSURE CABLE TIES ARE CUT FLUSH AND THAT THE TIE CAN BE ROTATED ON THE LOOM, THE KNUCKLE SHOULD BE TURNED SO THAT IT IS HIDDEN BEHIND THE LOOM.**

**IF UNSURE OFANYTHING STOP AND SPEAK TO LEADING HAND OR SUPERVISOR**

**USE CORRECT BOLT, WASHER AND NUT CONFIGURATION. IF UNSURE SPEAK TO YOUR LEADING HAND**

**SPRING WASHER IS NOT REQUIRED WHEN USING A NYLOCK NUT**

**NOTE DIFFERENT POSITION OF SPRING WASHER WHEN RIVNUT IS USED**

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| **Battery Reconnection WMS** | | | | | |
| **Task 1 - Battery Reconnection** | | | | | |
|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.1** | **Sign on to permit of isolation and lock on.** | 1. Inspect Locomotive entry points. 2. Ensure Roads are locked out and the Locomotive isolated. (Locomotive can be moved or other rolling stock can enter work area) 3. Ensure that safe working protection is in place. 4. Refer to Isolation matrix for lockout points. 5. Ensure entry walkways are properly secured with straps, & barriers are across any gaps. (Falling down to the pit can occur) | IMG_1175_648x484 |  |
|  |
| **Location:** |
| **Take Note:**   * Ask your Permit Isolation Officer or Administrator if unsure of isolation. * Trips and falls can occur whilst boarding Locomotive, unwanted movement of walkways can occur |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.2** | **Preparation – Mandatory** | **TASK OVERVIEW:**   1. This WMS provides a step by step procedure for the reconnection of the locomotive batteries. 2. Each step must be followed in order to safely and efficiently complete the task. 3. Each step is outlined clearly in the Task section of this document. |  |  |
|  |
| **Location:** |
| **Take Note:**   * Refer to the Components tab for Material, Tools and Equipment |
| **Components:** Materials:  1. Platform ladder/ mobile platform 2. Container to store nuts, bolts, and washers    Tools & Equipment:  1. Battery rattle gun 2. deep 19mm impact socket 3. Gloves 4. Safety glasses 5. ½ inch spanner 6. 300mm cable ties 7. Hearing protection 8. Penetrox “A” Electrical Joint Compound 9. Steel wire brush 10. Face shield 11. Torque wrench with ½ inch socket |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.3** | **Place personal lock on the hasp that is securing the knife switch door** | 1. Master lock should already be attached to hasp, securing knife switch door closed. (To eliminate the risk of there being a load on any circuits when batteries are connected, which could cause an arc flash) |  |  |
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| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.4** | **Locate battery panels on driver’s side of loco and position platform ladder** | 1. Make sure you are able to perform the task comfortably and without over reaching. (Eliminates soft tissue injuries etc.) |  |  |
| **Electrical** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.5** | **Clean battery terminals** | 1. Using the steel wire brush, clean the battery terminals of any dirt, dust, grease or debris. (Face shield may be needed, depending on the amount of dirt, dust, grease or debris) 2. Apply Penetrox “A” Electrical Joint Compound to the battery terminal. |  |  |
| **Electrical** |
| **Location:** |
| **Take Note:**   * Apply Penetrox “A” Electrical Joint Compound to the battery terminal |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.6** | **Connect positive terminal** | 1. Imperative that positive is connected first. (So a circuit cannot be made later between positive terminal and chassis with the spanner!!!!!) 2. The chassis becomes ground once negative is connected. 3. Using 1 x½ inch spanner, and a torque wrench with a ½ inch socket replace nuts, bolts and washers to the positive battery terminal first. To be tightened to 30-34Nm. **Add 10% if tightening bolt instead of nut** |  |  |
| **Electrical** |
| **Location:** |
| **Take Note:**   * Imperative that positive is connected first. |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.7** | **Connect negative terminal** | Apply the same procedure to the negative once you have finished the positive. |  |  |
| **Electrical** |
| **Location:** |
| **Take Note:**   * Notify QC officer 20 minutes before completion of task |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.8** | **Leading hand quality check.** | 1. Check all previous steps have been completed before contacting the Quality Control Team. 2. Sign off to be completed on the computers. |  |  |
| **Quality** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.9** | **Quality Check** | 1. ASTS Quality Control Inspector needs to contact Calibre representative to jointly complete the inspection. (ASTS and Calibre to inspect). 2. Sign off to be completed on the computers |  |  |
| **Quality** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.10** | **Replace panel** | Using the battery rattle gun and 19mm socket, replace 12 nuts and washers per panel. (Panel is supported from the first nut)  Replace nuts, starting from the top row, working your way to the bottom. |  |  |
| **Mechanical** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.11** | **Remove lock from knife switch door** | Remove lock from knife switch door after the area is clear of tools and rubbish. |  |  |
| **Mechanical Electrical** |
| **Location:** |
| **Take Note:**   * Notify QC officer 20 minutes before completion of task |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.12** | **Leading hand quality check.** | 1. Check all previous steps have been completed before contacting the Quality Control Team. 2. Sign off to be completed on the computers. |  |  |
| **Quality** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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|  | **Sub-Step (What)** | **Highlight/Key Point (How)** | **Visual Support** | **Sign Off** |
| **1.13** | **Quality Check** | 1. ASTS Quality Control Inspector needs to contact Calibre representative to jointly complete the inspection. (ASTS and Calibre to inspect) 2. Sign off to be completed on the computers |  |  |
| **Quality** |
| **Location:** |
| **Take Note:** |
| **Components:** |
| **Attachments:** |

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| **Battery reconnection WMS– Sign On** | | | |
| **Name** | **Date** | **Comments** | **Signature** |
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