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| **Signalling Like for Like Renewal Work Instruction** | **WO No.**  |
| **Page 1 of 2** |
| **Scope:** |  | **Date:** |
| **Team Leader:** |  | **Axle Counter Type:** |  |
| **Activity:** | **Siemens ACM250 DEK WHEEL SENSOR LIKE FOR LIKE RENEWAL** |
| **Reference:** PR S 4009, PR S 40051, MN S 41588 |
| **Activity No.** | **Task No.** | **WORK DESCRIPTION** | **Completed****Name/Sign** |
|  |  | **APPARATUS INSPECTION & PREPARATION** |  |
| **1** | **1A** | Ensure that the new wheel sensor is a DEK. |  |
|  | **1B** | Ensure the new DEK sensors are free from damage. |  |
| **2** | **2A** | Confirm which DEK has failed by observing ‘TVDS1’ and/or ‘TVDS2’ Red LED is flashing on the associated Evaluator module.  |  |
| **NOTE** | A red flashing TVDS LED indicates the associated track section is faulty. A red steady TVDS LED indicates the track section is indicated occupied and requires a reset. Refer to Maintenance Instructions for LED indication meanings. |
|  | **2B** | Alternatively, connect a laptop to view diagnostics via the web portal.  |  |
|  | **2D** | Confirm the DEK wheel sensor clamp is not damaged. Repair or replace if necessary. |  |
|  |  | **SAFEWORKING & DISCONNECTION FROM INTERLOCKING** |  |
| **3** | **3A** | Determine if the Siemens ACM250 equipment and any associated signalling are required to be booked out of use in accordance with PR S 40008 – Securing Signalling Apparatus Out of Use. |  |
|  | **3B** | If required, disconnect the affected Siemens ACM250 equipment and associated signalling, in accordance with PR S 40009 – Disconnection of Signalling Apparatus. |  |
|  |  | **DISCONNECTION, REMOVAL AND INSTALLATION** |  |
| **4** | **4A** | Mark the location of the existing wheel sensor (this will ensure correct reinstallation)  |  |
|  | **4B** | Disconnect the DEK tail cables from the associated Trackside Connection Box. |  |
|  | **4C** | Remove the DEK sensors and clamp via removal of fixing bolts. |  |
| **NOTE** | If the wheel sensor clamp is damaged then replace the clamp with the wheel sensor. |
|  | **4D** | Install the new DEK wheel sensors to the clamp, tighten fixing bolts to 40Nm. |  |
|  | **4E** | Ensure the clamp castings are fitted to the foot of the rail correctly.  |  |
|  | **4F** | Tighten clamp to rail, tighten fixing bolts to 250Nm.  |  |
| **5** | **5A** | Confirm the voltage range at the Trackside Connection Box is 30 – 72VDC. |  |
|  | **5B** | Ensure the Switch S1 within the Trackside Connection Box is set to “FR”. |  |

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| **Siemens ACM250 DEK WHEEL SENSOR LIKE FOR LIKE RENEWAL** | **Page 2 of 2** |
|  | **5C** | Calibrate new DEK wheel sensor at the Trackside Connection Box.1. Push both KAL buttons simultaneously until both L4 LEDs show a steady green light.
2. Release the KAL buttons and check indications.
3. Confirm if both L4 LEDs are off

Confirm if both L3 LEDs are flashing green.  |  |
| **6** | **6A** | Confirm transmitter frequency on terminals 6 & 7 are between 41.5 – 44.5kHz |  |
|  | **6B** | Confirm transmitter frequency on terminals 8 & 9 are between 41.5 – 44.5kHz |  |
|  | **6C** | Confirm receiver voltage 1 on terminals 3 & 4 are between 60 – 150mV AC |  |
|  | **6D** | Confirm receiver voltage 2 on terminals 1 & 2 are between 60 – 150mV AC |  |
|  | **6E** | Confirm the difference between receiver voltages is less than 10mV AC |  |
| **7** | **7A** | Calibrate the ACM250 evaluator:1. Press the “CL” button on the ACM for approx. 3 seconds. The “CAL” LED should show a steady yellow light.
2. To calibrate the ACM for wheel detector DS1, press “DIR1” for approx. 3 seconds, alternatively
3. To calibrate the ACM for wheel detector DS2, press “DIR2” for approx. 3 seconds.

As soon as the “DIR1” or “DIR2” LED shows a steady yellow light, release the “DIR1” or “DIR2” button.After calibration has been completed, the result is indicated for 5 s:1. “DIR1/DIR2” LED briefly shows a steady green light: calibration successful
2. “DIR1/DIR2” LED shows a steady red light: calibration not successful.
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| **NOTE** | It may be the case that the ACM cannot save the calibration data immediately. Wait 90 s until the “CAL” LED no longer shows a flashing green light. If the “CAL” LED continues to show a flashing green light after 90 s, restart the ACM and recalibrate again. |
| **8** | **8A** | Perform occupancy detection test1. Place the Axle Counter Test Tool on the edge of the wheel sensor and slide towards the track section slowly
2. Confirm the corresponding DS# LEDs of the associated evaluator illuminate in turn.
3. Confirm the associated TVDS track section illuminates (track occupied)
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|  | **8B** | Perform occupancy detection test1. Place the Axle Counter Test Tool on the opposite edge of the wheel sensor and slide away from the track section slowly.
2. Confirm the corresponding DS# LEDs of the associated evaluator illuminate in turn.
3. Confirm the associated TVDS track section LED extinguishes (track not occupied)
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|  |  | **CERTIFICATION** |  |
| **10** | **10A** | Verify that the new DEK wheel sensor has been installed in the correct location |  |
|  | **10B** | Document the replacement of the DEK on the associated wheel sensor history card. |  |
|  | **10C** | A reset of the track section shall be required in accordance with PR S 40051. |  |
| **11** | **11A** | If applicable, book the ACM250 axle counter back into use. |  |

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| **I certify \_\_\_\_\_\_ DEK wheel sensor at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ location has been inspected and tested and is fit for service.****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****Print Name Position****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_****Signature Date** |