## TSC Category
Rail Systems Maintenance

## TSC
Automatic Fare Collection Auxiliary Systems Maintenance

## TSC Description
Implement preventive and corrective maintenance activities of Automatic Fare Collection (AFC) auxiliary systems

## TSC Proficiency Description

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<td><strong>Level 1</strong></td>
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<td>PTP-RSM-1001-1.1</td>
<td>PTP-RSM-2001-1.1</td>
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<tr>
<td>Carry out scheduled maintenance work on Automatic Fare Collection (AFC) auxiliary systems</td>
<td>Conduct corrective maintenance on Automatic Fare Collection (AFC) auxiliary systems</td>
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### Knowledge
- Functional relationships between AFC auxiliary systems
- Operating principles, and functions of AFC auxiliary systems
- Types of hardware relating to AFC auxiliary systems that includes: Station Computer, Network Equipment, Monitoring and Control Workstation, Power Distribution Board
- Procedures for servicing AFC auxiliary systems in accordance to organisational procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical manuals
- Types of tools and equipment for carrying out preventive maintenance on AFC auxiliary systems
- Safety guidelines on use of tools and equipment
- Functional relationships between AFC auxiliary systems
- Operating principles, schematic diagrams and functions of AFC auxiliary systems
- Types of hardware relating to AFC auxiliary systems that includes: Station Computer, Network Equipment, Monitoring and Control Workstation, Power Distribution Board
- Common failures of hardware and components in AFC auxiliary systems
- Fundamentals of network systems
- Procedures to dismantle, repair, replace, and re-assemble hardware in AFC auxiliary systems
- Types of software, tools and equipment for carrying out corrective maintenance on AFC auxiliary systems
- Common fault symptoms in AFC auxiliary systems
- Fundamentals of network systems
- Fundamentals of routing and subnets
- Methods of locating and rectifying faults
- Types of troubleshooting techniques, equipment and tools
- Procedure for system software configuration and/or upgrade
- Safety guidelines on use of tools and equipment in troubleshooting AFC auxiliary systems
- Factors affecting the performance of AFC auxiliary systems
- Network configurations and management
- Failure investigation and prevention methods
- Methods and tools for diagnostic analysis
- Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations
- Types and methods of functional tests on AFC auxiliary systems
- Functional relationships between AFC systems and the overall rail system
<table>
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<th>Abilities</th>
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<tr>
<td><strong>Perform preparation work to conduct preventive maintenance on AFC auxiliary systems</strong></td>
<td>Types and usage of Personal Protective Equipment (PPE) for AFC auxiliary systems maintenance</td>
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<tr>
<td><strong>Follow organisational procedures, WI and/or OEM technical manuals to carry out preventive maintenance on AFC auxiliary systems</strong></td>
<td>Types of errors and warning logs of AFC auxiliary systems</td>
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<td><strong>Perform serviceability checks on AFC auxiliary systems</strong></td>
<td>Procedures for conducting system performance checks on AFC auxiliary systems</td>
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<td><strong>Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work</strong></td>
<td>Safety guidelines on use of tools and equipment for corrective maintenance on AFC auxiliary systems</td>
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<td><strong>Record AFC auxiliary systems maintenance activities and report occurrences of potential faults identified</strong></td>
<td>Types and usage of Personal Protective Equipment (PPE) for AFC auxiliary systems maintenance</td>
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**Abilities**

- Perform preparation work to conduct preventive maintenance on AFC auxiliary systems
- Follow organisational procedures, WI and/or OEM technical manuals to carry out preventive maintenance on AFC auxiliary systems
- Perform serviceability checks on AFC auxiliary systems
- Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work
- Record AFC auxiliary systems maintenance activities and report occurrences of potential faults identified
- Interpret work orders and prepare for corrective maintenance
- Apply fault identification procedures to determine causes of AFC auxiliary systems failures
- Apply power isolation procedures
- Dismantle AFC auxiliary systems for corrective maintenance
- Carry out repair and/or replacement of faulty components
- Reassemble and reinstate AFC auxiliary systems
- Conduct functional test to determine operability of AFC auxiliary systems
- Apply operating and safety measures in operating tools and equipment during maintenance work
- Record and collate documentation of AFC
- Use troubleshooting software, tools and equipment and methods to locate and analyse causes of AFC auxiliary systems and hardware faults
- Recommend corrective actions for identified faults on AFC auxiliary systems
- Implement procedures and Work Instructions for system reconfiguration or software upgrades
- Implement safety and operating procedures on tools and equipment usage during maintenance work
- Analyse maintenance work documented for AFC auxiliary systems to identify possible workflow improvements to prevent fault recurrence
- Establish structured failure investigation and specify functional testing requirements
- Perform fault tree analyses to diagnose root cause failure of AFC auxiliary systems
- Review organisational AFC auxiliary systems maintenance procedures
- Propose new and/or enhanced maintenance WI in reference to OEM technical recommendations
- Monitor overall maintenance progress of AFC auxiliary systems to ascertain effectiveness of maintenance plan
- Develop long-term solutions by analysing diagnostics data to prevent faults and failures recurrence
| auxiliary systems maintenance work | • Develop troubleshooting, rectification and fault analysis methods  
• Develop test procedures for system performance checks  
• Coordinate AFC auxiliary systems maintenance with other rail system maintenance needs |