

**SKILLS FRAMEWORK FOR PUBLIC TRANSPORT  
TECHNICAL SKILLS AND COMPETENCIES (TSC) REFERENCE DOCUMENT**

<b>TSC Category</b>	Rail Systems Maintenance					
<b>TSC</b>	Third Rail Maintenance					
<b>TSC Description</b>	Implement preventive and corrective maintenance activities of third rail system					
<b>TSC Proficiency Description</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Level 4</b>	<b>Level 5</b>	<b>Level 6</b>
	<b>PTP-RSM-1038-1.1</b>	<b>PTP-RSM-2038-1.1</b>	<b>PTP-RSM-3038-1.1</b>	<b>PTP-RSM-4038-1.1</b>		
	Carry out scheduled preventive maintenance on third rail system	Conduct corrective maintenance on third rail system	Troubleshoot and faults on third rail system to recommend rectification methods	Diagnose root causes of third rail system failure and review maintenance plans to prevent fault recurrence		
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Operating principles of third rail system</li> <li>Types and functions of components in third rail system that includes:                             <ul style="list-style-type: none"> <li>Conductor rail</li> <li>Fish-plated joint</li> <li>Mid-point anchor</li> <li>Expansion joint</li> <li>High and low speed ramps</li> <li>Third rail support assembly</li> <li>Cable terminals and third rail covers</li> </ul> </li> <li>Procedures for servicing third rail system in accordance to organisational maintenance procedures, Work Instructions (WI) or Original Equipment Manufacturer (OEM) technical manuals</li> <li>Types of tools and equipment for carrying out preventive maintenance on third rail system</li> <li>Organisational procedures for track</li> </ul>	<ul style="list-style-type: none"> <li>Operating principles of third rail system</li> <li>Types and functions of components in third rail system that includes:                             <ul style="list-style-type: none"> <li>Conductor rail</li> <li>Fish-plated joint</li> <li>Mid-point anchor</li> <li>Expansion joint</li> <li>High and low speed ramps</li> <li>Third rail support assembly</li> <li>Cable terminals and third rail covers</li> </ul> </li> <li>Common failures of third rail system and its components</li> <li>Procedures to dismantle, repair, replace, and re-assemble third rail components</li> <li>Types of tools and equipment for carrying out corrective maintenance on third rail system</li> <li>Organisational procedures for track possession and setting up of possession area</li> </ul>	<ul style="list-style-type: none"> <li>Fundamental of power distribution</li> <li>Fundamentals of electrical principles</li> <li>Common fault symptoms in third rail system</li> <li>Methods of locating and rectifying faults</li> <li>Types of troubleshooting techniques, equipment and tools</li> <li>Safety guidelines on use of tools and equipment to execute troubleshooting on third rail</li> </ul>	<ul style="list-style-type: none"> <li>Factors affecting third rail system performance</li> <li>Failure investigation and prevention methods</li> <li>Methods and tools for diagnostic analysis</li> <li>Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations</li> <li>Types and methods of verification test on third rail system</li> <li>Functional relationships between third rail system and other power systems and the overall rail system</li> </ul>		

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	<p>possession and setting up of possession area</p> <ul style="list-style-type: none"> <li>• Safety guidelines on use of tools and equipment for preventive maintenance on third rail system</li> <li>• Types and usage of Personal Protective Equipment (PPE) for third rail system maintenance</li> <li>• Organisational maintenance documentation and fault reporting procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Safety guidelines on use of tools and equipment for corrective maintenance on third rail system</li> <li>• Types and usage of Personal Protective Equipment (PPE) for third rail system maintenance</li> <li>• Organisational maintenance documentation and fault reporting procedures</li> </ul>				
<b>Abilities</b>	<ul style="list-style-type: none"> <li>• Perform preparation work to conduct preventive maintenance on third rail system</li> <li>• Adhere to track possession schedules and procedures and set up possession area</li> <li>• Follow organisational procedures and/or OEM technical manuals to carry out preventive maintenance on third rail system</li> <li>• Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work</li> <li>• Record third rail system maintenance activities and report occurrences of potential faults identified</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret work orders and prepare for corrective maintenance</li> <li>• Adhere to track possession schedules and procedures and set up possession area</li> <li>• Apply fault identification procedures to determine causes of third rail component faults</li> <li>• Dismantle third rail components for corrective maintenance</li> <li>• Carry out repair and/or replacement of faulty third rail components</li> <li>• Reassemble and reinstate third rail system</li> <li>• Perform functional tests on third rail system</li> <li>• Apply operating and safety measures in operating tools and equipment during maintenance work</li> <li>• Record and collate documentation of third</li> </ul>	<ul style="list-style-type: none"> <li>• Use troubleshooting tools, equipment and methods to locate and analyse causes of third rail system faults</li> <li>• Recommend corrective actions for identified faults on third rail system</li> <li>• Implement operating procedures for safe usage of tools and equipment during maintenance work</li> <li>• Analyse maintenance work documented for third rail system to identify possible workflow improvements so as to prevent fault recurrence</li> </ul>	<ul style="list-style-type: none"> <li>• Establish structured failure investigation and specify functional testing requirements</li> <li>• Apply failure investigation methods to diagnose root cause failure of third rail systems</li> <li>• Review organisational third rail system maintenance procedures</li> <li>• Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations</li> <li>• Monitor overall maintenance progress of third rail system to ascertain effectiveness of maintenance procedures</li> <li>• Develop long-term solutions by analysing diagnostic data to prevent faults and failures recurrence</li> </ul>		

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		<p>rail system maintenance work</p>		<ul style="list-style-type: none"> <li>• Develop troubleshooting, rectification and fault analysis methods</li> <li>• Develop verification procedures to assess whether the condition of third rail system are within specification limits</li> <li>• Coordinate third rail system maintenance with other rail system maintenance needs</li> </ul>		
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