

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

<b>TSC Category</b>	Rail Systems Maintenance					
<b>TSC</b>	Rail Grinding Vehicle Maintenance					
<b>TSC Description</b>	Implement preventive and corrective maintenance activities of rail grinding vehicle					
<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-1023-1.1</b>	<b>PTP-RSM-2023-1.1</b>	<b>PTP-RSM-3023-1.1</b>	<b>PTP-RSM-4023-1.1</b>		
	Carry out scheduled preventive maintenance on rail grinding vehicles	Conduct corrective maintenance on rail grinding vehicles	Troubleshoot faults on rail grinding vehicles to locate faults and recommend rectification methods	Diagnose root causes of rail grinding vehicle failure and review maintenance plans to prevent fault recurrence		
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>Operating principles of rail grinding vehicles</li> <li>Types and functions of rail grinding vehicle on-board equipment that includes: <ul style="list-style-type: none"> <li>Grinding motor</li> <li>Dust collection system</li> <li>Water spray system</li> <li>Fire suppression system</li> </ul> </li> <li>Procedures for servicing rail grinding vehicles and on-board in accordance to organisational maintenance, Work Instructions (WI) or Original Equipment Manufacturer (OEM) technical manuals</li> <li>Types of tools and equipment for carrying out preventive maintenance on rail grinding vehicles and on-board equipment</li> <li>Safety guidelines on use of tools and equipment for preventive maintenance on rail grinding vehicle</li> </ul>	<ul style="list-style-type: none"> <li>Operating principles of rail grinding vehicles</li> <li>Types and functions of rail grinding vehicle on-board equipment that includes: <ul style="list-style-type: none"> <li>Grinding motor</li> <li>Dust collection system</li> <li>Water spray system</li> <li>Fire suppression system</li> </ul> </li> <li>Common failures and symptoms of rail grinding vehicles and on-board equipment</li> <li>Procedures to identify faults and failures of rail grinding vehicles, on-board equipment and components</li> <li>Procedures to dismantle, rectify, repair, replace, and re-assemble rail grinding vehicles, on board equipment and components</li> <li>Procedures to reinstate rail grinding vehicle, on board equipment and components</li> <li>Procedures for conducting vehicle</li> </ul>	<ul style="list-style-type: none"> <li>Engineering principles of rail grinding vehicles</li> <li>Fundamentals of track geometry alignment</li> <li>Types of rail surface defects and deformation</li> <li>Common fault symptoms of rail grinding vehicles and on-board equipment</li> <li>Types of troubleshooting techniques, equipment, tools and software</li> <li>Methods of locating and rectifying faults</li> <li>Safety guidelines for usage of tools and equipment to execute rail grinding vehicle troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>Engineering principles of rail grinding vehicles</li> <li>Fundamentals of track geometry alignment</li> <li>Factors affecting rail grinding vehicles and on-board equipment 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>Kinematics and dynamic features of rail grinding vehicles</li> <li>Principles of collision and derailment</li> <li>Types and methods of functional tests on rail grinding vehicles and on-board equipment</li> <li>Functional relationships between engineering trains, rail grinding vehicles, plant equipment</li> </ul>		

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	<ul style="list-style-type: none"> <li>• Types and usage of Personal Protective Equipment (PPE) for rail grinding vehicle maintenance</li> <li>• Organisational maintenance documentation and fault reporting procedures</li> </ul>	<p>performance and functionality tests on rail grinding vehicles and on-board equipment</p> <ul style="list-style-type: none"> <li>• Types of tools and equipment for carrying out corrective maintenance on rail grinding vehicles</li> <li>• Safety guidelines on use of tools and equipment for corrective maintenance on rail grinding vehicles</li> <li>• Types and usage of Personal Protective Equipment (PPE) for rail grinding vehicle maintenance</li> </ul>		<p>and the overall rail system</p>		
<b>Abilities</b>	<ul style="list-style-type: none"> <li>• Perform preparation work to conduct preventive maintenance on rail grinding vehicles and on-board equipment</li> <li>• Follow organisational WI and/or OEM technical manuals to carry out preventive maintenance on rail grinding vehicles and on-board equipment</li> <li>• Carry out functional checks on rail grinding vehicles and on-board equipment</li> <li>• Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work</li> <li>• Record rail grinding vehicle maintenance activities and report occurrences of faults identified</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret work orders and prepare for corrective maintenance</li> <li>• Apply fault identification procedures to determine causes of faults on rail grinding vehicles and on-board equipment</li> <li>• Dismantle rail grinding vehicles and on-board equipment for corrective maintenance</li> <li>• Rectify, repair and/or replace faulty components</li> <li>• Reassemble and reinstate rail grinding vehicles and on-board equipment</li> <li>• Conduct functional tests to determine the operability of rail grinding vehicle and on-board equipment</li> <li>• Apply operating and safety measures in</li> </ul>	<ul style="list-style-type: none"> <li>• Use troubleshooting tools, equipment and methods to locate and analyse causes of faults on rail grinding vehicles and on-board equipment</li> <li>• Recommend corrective actions for identified faults on rail grinding vehicles and on-board equipment</li> <li>• Implement procedures on safe usage of tools and equipment during maintenance work</li> <li>• Analyse maintenance work documented for rail grinding vehicles to identify possible workflow improvements so as to prevent fault recurrence</li> </ul>	<ul style="list-style-type: none"> <li>• Guide Establish structured failure investigation and specify functional testing requirements</li> <li>• Perform fault tree analyses to diagnose root cause failure of rail grinding vehicle systems and on-board equipment</li> <li>• Review organisational rail grinding vehicle maintenance procedures and Work Instructions</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 rail grinding vehicles to ascertain effectiveness of maintenance procedures</li> </ul>		

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		<p>operating tools and equipment during maintenance work</p> <ul style="list-style-type: none"> <li>Record and collate documentation of rail grinding vehicle maintenance work</li> </ul>		<ul style="list-style-type: none"> <li>Develop solutions by analysing diagnostic data to prevent faults and failures recurrence</li> <li>Develop troubleshooting, rectification and fault analysis methods and techniques</li> <li>Develop test procedures and WI for rail grinding vehicle functional checks</li> <li>Coordinate rail grinding vehicle maintenance with other rail systems maintenance needs</li> </ul>		
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