

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

TSC Category	Rail Systems Maintenance					
TSC	Rolling Stock On-board Control Systems Maintenance					
TSC Description	Implement preventive and corrective maintenance activities of rolling stock on-board control systems					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	PTP-RSM-1031-1.1	PTP-RSM-2031-1.1	PTP-RSM-3031-1.1	PTP-RSM-4031-1.1		
	Carry out scheduled preventive maintenance work on rolling stock on-board control systems	Conduct corrective maintenance on rolling stock on-board control systems	Troubleshoot faulty rolling stock on-board control systems to locate faults and recommend rectification methods	Diagnose root causes of rolling stock on-board control systems failure and review maintenance plans to prevent fault recurrence		
Knowledge	<ul style="list-style-type: none"> Operating principles, functions and features of rolling stock on-board control systems Types of rolling stock on-board control systems Types of components in rolling stock on-board control systems Procedures for servicing rolling stock on-board control systems in accordance to organisational maintenance procedures, Work Instructions (WI) or Original Equipment Manufacturer (OEM) technical manuals Types and usage of software and hardware tools for carrying out preventive maintenance on rolling stock on-board control systems Safety guidelines on use of tools and equipment for preventive maintenance on rolling stock on-board control systems 	<ul style="list-style-type: none"> Operating principles, functions and features of rolling stock on-board control systems Types of rolling stock on-board control systems Types of components in rolling stock on-board control systems Common software and hardware failures of rolling stock on-board control systems Procedures to dismantle repair, replace, and re-assemble rolling stock on-board control systems Procedures for conducting system performance checks and identifying software configuration errors Types and usage of software and hardware tools for carrying out corrective maintenance on rolling stock on-board control systems Safety guidelines on use of tools and equipment for preventive maintenance on rolling stock on-board control systems 	<ul style="list-style-type: none"> Operating principles, functions and features of rolling stock on-board control systems Common software and hardware fault symptoms in rolling stock on-board control systems Methods of locating and rectifying faults Types and usage of troubleshooting techniques, equipment and tools Safety guidelines for usage of tools and equipment to execute troubleshooting on rolling stock on-board control systems 	<ul style="list-style-type: none"> Factors affecting rolling stock on-board control systems and components performance 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 rolling stock on-board control systems Functional relationships between rolling stock on-board control systems, other rolling stock systems and the overall rail system 		

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	<ul style="list-style-type: none"> Types and usage of Personal Protective Equipment (PPE) for rolling stock control systems maintenance Organisational maintenance documentation and fault reporting procedures 	<ul style="list-style-type: none"> Types and usage of Personal Protective Equipment (PPE) for rolling stock control systems maintenance Organisational maintenance documentation and fault reporting procedures 				
Abilities	<ul style="list-style-type: none"> Perform preparation work to conduct maintenance on rolling stock on-board control systems Follow organisational maintenance procedures, WI and/or OEM technical manuals to carry out preventive maintenance on rolling stock on-board control systems Perform functionality checks on rolling stock on-board control systems Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work Record rolling stock on-board control systems maintenance activities and report occurrences of potential faults identified 	<ul style="list-style-type: none"> Interpret work orders and prepare for corrective maintenance Apply fault identification procedures to determine causes of software and/or hardware errors and faults Apply debugging, rectification and reconfiguration procedures to rolling stock on-board control systems software bugs and errors Dismantle rolling stock on-board control systems for corrective maintenance Carry out rectification, repair and/or replacement of faulty components Reassemble and reinstate rolling stock on-board control systems Perform functional tests on rolling stock on-board control systems Apply operating and safety measures in operating tools and equipment during maintenance work Record and collate documentation of rolling stock on-board control systems maintenance work 	<ul style="list-style-type: none"> Use troubleshooting tools, equipment and methods to locate and analyse causes of rolling stock on-board control system faults Recommend corrective actions for identified faults on rolling stock on-board control systems Implement procedures on safe usage of tools and equipment during maintenance work Analyse maintenance work documented for rolling stock on-board control systems to identify possible workflow improvements so as to prevent fault recurrence 	<ul style="list-style-type: none"> Establish structured failure investigation and specify functional testing requirements Apply failure investigation methods to diagnose root cause failure of rolling stock on-board control systems Review organisational rolling stock on-board control systems maintenance procedures Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations Monitor overall maintenance progress of rolling stock on-board control systems to ascertain effectiveness of maintenance procedures Develop solutions by analysing diagnostic data to prevent faults and failures recurrence Develop troubleshooting, rectification and fault analysis methods Develop test procedures for system performance checks 		

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				<ul style="list-style-type: none">• Coordinate rolling stock on-board control systems maintenance with other rail systems maintenance needs		
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