

TSC Category	Rail Systems Maintenance					
TSC	Multi-function Vehicle Maintenance					
TSC Description	Implement preventive and corrective maintenance activities of multi-function vehicle					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	PTP-RSM-1019-1.1	PTP-RSM-2019-1.1	PTP-RSM-3019-1.1	PTP-RSM-4019-1.1		
	Carry out scheduled preventive maintenance on multi-function vehicles	Conduct corrective maintenance on multi-function vehicles	Troubleshoot faults on multi-function vehicles to locate and recommend rectification methods	Diagnose root causes of multi-function vehicle failure to review root causes and develop maintenance plan to prevent fault recurrence		
Knowledge	<ul style="list-style-type: none"> Operating principles of multi-function vehicles and on-board equipment Fundamentals of hydraulic and pneumatic systems Types and functions of multi-function vehicle systems that includes: <ul style="list-style-type: none"> Rail flaw detection Track hardware monitoring Tunnel Geometry Measurement Structure Clearance Measurement Procedures for servicing multi-function vehicles and on-board equipment in accordance to organisational maintenance procedures, Work Instruction (WI) or Original Equipment Manufacturer (OEM) technical manuals Types of tools and equipment for carrying out preventive maintenance on multi- 	<ul style="list-style-type: none"> Operating principles of multi-function vehicles and on-board equipment Fundamentals of hydraulic and pneumatic systems Types and functions of multi-function vehicle systems that includes: <ul style="list-style-type: none"> Rail flaw detection Track hardware monitoring Tunnel Geometry Measurement Structure Clearance Measurement Common failures and symptoms of multi-function vehicles and on-board equipment Procedures to identify multi-function vehicle and on-board equipment faults Procedures to dismantle, rectify, repair, replace, and reassemble multi-function vehicle on board equipment and components 	<ul style="list-style-type: none"> Types of rail surface defects Common fault symptoms of multi-function vehicle and on board equipment Methods of locating and rectifying faults Types of troubleshooting techniques, equipment, tools and software Safety guidelines for usage of tools and equipment to execute multi-function vehicle troubleshooting 	<ul style="list-style-type: none"> Factors affecting multi-function vehicles and on-board equipment performance Failure investigation and prevention methods Methods and tools for diagnostic analysis Kinematics and dynamic features of multi-function vehicles Principles of collision and derailment Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations Types and methods of functional tests on multi-function vehicles and on-board equipment Functional relationships between multi-function vehicles, plant equipment and the overall rail systems 		

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

	<p>function vehicles and on-board equipment</p> <ul style="list-style-type: none"> • Safety guidelines on use of tools and equipment for preventive maintenance on multi-function vehicles • Types and usage of Personal Protective Equipment (PPE) for multi-function vehicle maintenance • Organisational maintenance documentation and fault reporting procedures 	<ul style="list-style-type: none"> • Procedures to reinstate multi-function vehicles, on-board equipment and components • Procedures for conducting system performance and functionality checks on multi-function vehicles and on-board equipment • Types of tools and equipment for carrying out corrective maintenance on multi-function vehicles • Safety guidelines on use of tools and equipment for corrective maintenance on multi-function vehicles • Types and usage of Personal Protective Equipment (PPE) for multi-function vehicle maintenance 				
Abilities	<ul style="list-style-type: none"> • Perform preparation work to conduct preventive maintenance on multi-function vehicles and on-board equipment • Follow organisational maintenance procedure, WI and/or OEM technical manuals to carry out preventive maintenance on multi-function vehicles and on-board equipment • Carry out functional checks on multi-function vehicles and on-board equipment 	<ul style="list-style-type: none"> • Interpret work orders and prepare for corrective maintenance • Apply fault identification procedures to determine causes of faults on multi-function vehicles, on-board equipment and components • Dismantle multi-function vehicle systems and on-board equipment for corrective maintenance • Rectify, repair and/or replace faulty components • Reassemble and reinstate multi-function 	<ul style="list-style-type: none"> • Use troubleshooting tools, equipment and methods to locate and analyse causes of faults on multi-function vehicles and on-board equipment • Recommend corrective actions for identified faults on multi-function vehicles and on-board equipment • Implement procedures on safety tools and equipment usage during maintenance work • Analyse multi-function vehicle maintenance work documented to 	<ul style="list-style-type: none"> • Establish structured failure investigation and specify functional testing requirements • Perform fault tree analyses to diagnose root cause failure of multi-function vehicle systems and on-board equipment • Review organisational multi-function vehicle maintenance procedures and WI • Propose new and/or enhanced maintenance procedures and WI in reference to OEM 		

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	<ul style="list-style-type: none"> Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work Record multi-function vehicle maintenance activities and report occurrences of faults identified 	<p>vehicle systems and on-board equipment</p> <ul style="list-style-type: none"> Conduct functional tests to determine operability of multi-function vehicles and on-board equipment Apply operating and safety measures in operating tools and equipment during maintenance work Record and collate documentation of multi-function vehicle maintenance work 	<p>identify possible workflow improvements so as to prevent fault recurrence</p>	<p>technical recommendations</p> <ul style="list-style-type: none"> Monitor overall maintenance progress of multi-function vehicles 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 and techniques Develop test procedures and WI for multi-function vehicles, on-board equipment and components functional checks Coordinate multi-function vehicle maintenance tasks with other rail systems maintenance needs 		
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