

TSC Category	Rail Systems Maintenance					
TSC	Communication Backbone System Maintenance					
TSC Description	Implement preventive and corrective maintenance activities of communication backbone system					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	PTP-RSM-1006-1.1	PTP-RSM-2006-1.1	PTP-RSM-3006-1.1	PTP-RSM-4006-1.1		
	Carry out scheduled preventive maintenance work on communication backbone system	Conduct corrective maintenance on communication backbone system	Troubleshoot faulty communication backbone system to locate faults and recommend rectification methods	Diagnose root causes of communication backbone system failure and review maintenance plans to prevent fault recurrence		
Knowledge	<ul style="list-style-type: none"> Operating principles and functions of communication backbone system Technologies of communication backbone system that includes: <ul style="list-style-type: none"> Synchronous Digital Hierarchy (SDH) Multi-Protocol Label Switching (MPLS) Types of equipment in communication backbone system Procedures for servicing communication backbone system in accordance to organisational procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical manuals Types of software and hardware tools for carrying out preventive maintenance in communication backbone system Safety guidelines on use of tools and equipment 	<ul style="list-style-type: none"> Technologies of communication backbone system that includes: <ul style="list-style-type: none"> Synchronous Digital Hierarchy (SDH) Multi-Protocol Label Switching (MPLS) Types of equipment in communication backbone system Procedures to monitor the performance of: <ul style="list-style-type: none"> Network Management System software Maintenance Application software Procedures to normalise software faults on communication backbone systems Procedures to dismantle, repair, replace, and re-assemble communication backbone system equipment Types of software and hardware tools for carrying out corrective maintenance in communication backbone system 	<ul style="list-style-type: none"> Network fundamentals Common fault symptoms in communication backbone system Methods of locating and rectifying faults Types of troubleshooting techniques, equipment and tools Procedures to monitor the performance of: <ul style="list-style-type: none"> Network Management System software Maintenance Application software Types of alarms for communication backbone system Procedures to normalise software faults on communication backbone system 	<ul style="list-style-type: none"> Network configuration and management Network analysis Factors affecting equipment and system performance Failure investigation and prevention methods Methods and tools for diagnostic analysis Organisational maintenance procedures, Work Instructions (WI) and/or Original Equipment Manufacturer (OEM) technical recommendations Types and methods of system performance checks, on communication backbone system and equipment Functional relationships between communication backbone system, other communication systems and the overall rail systems 		

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	<p>for preventive maintenance on communication backbone system</p>	<ul style="list-style-type: none"> • Types of alarms for communication backbone system • Principle of redundancy for protective and control measures in communication backbone system • Safety guidelines on use of tools and equipment for corrective maintenance on communication backbone systems 				
<p>Abilities</p>	<ul style="list-style-type: none"> • Perform preparation work to conduct preventive maintenance on communication backbone system • Follow organisational procedures, WI and/or OEM technical manuals to carry out preventive maintenance on communication backbone system • Perform systems functional checks • Adhere to safety guidelines and operating instructions for tools and equipment during maintenance activities • Record communication backbone system maintenance activities and report occurrences of faults identified 	<ul style="list-style-type: none"> • Interpret work orders and prepare for corrective maintenance • Normalise software faults on communication backbone system • Dismantle faulty equipment in communication backbone system for corrective maintenance • Carry out retification, repair and/or replacement of faulty components • Reassemble and reinstate communication backbone system • Conduct communication backbone system functional tests • Apply operating and safety measures in operating tools and equipment during maintenance work • Record and collate documentation of communication backbone system maintenance activities 	<ul style="list-style-type: none"> • Use troubleshooting tools and equipment to locate and analyse causes of communication backbone system faults • Perform system software reconfiguration and/or upgrade • Recommend corrective actions for identified faults on communication backbone system • Implement procedures on safe usage of tools and equipment during maintenance work • Analyse maintenance work documented for communication backbone system to identify possible workflow improvements 	<ul style="list-style-type: none"> • Establish structured failure investigation and specify functional testing requirements • Perform fault tree analyses to diagnose root cause failure on communication backbone system • Review organisational communication backbone system maintenance procedures and/or WI • Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations • Monitor overall maintenance progress of communication backbone system to ascertain effectiveness of maintenance plan • Develop solutions by analysing diagnostic data to prevent faults and failures recurrence 		

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				<ul style="list-style-type: none">• Develop troubleshooting, rectification and fault analysis methods• Develop test procedures for system performance checks• Coordinate communication backbone system maintenance with other rail systems maintenance needs		
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