

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

TSC Category	Rail Systems Maintenance					
TSC	Rolling Stock Power Systems Maintenance					
TSC Description	Implement preventive and corrective maintenance activities of rolling stock power systems					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	PTP-RSM-1032-1.1	PTP-RSM-2032-1.1	PTP-RSM-3032-1.1	PTP-RSM-4032-1.1		
	Carry out scheduled preventive maintenance work on rolling stock power systems	Conduct corrective maintenance on rolling stock power systems	Troubleshoot faulty rolling stock power systems to locate faults and recommend rectification methods	Diagnose root causes of rolling stock power 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 power systems and components Types and functions of rolling stock power equipment that includes: <ul style="list-style-type: none"> Power transformers Power supply and battery Power collector system Power protection Power generator Circuit breaker Power distribution system Procedures for servicing rolling stock power equipment in accordance to organisational maintenance procedures, Work Instructions (WI) or Original Equipment Manufacturer (OEM) technical manuals Types and usage of tools and equipment for carrying out preventive maintenance on rolling stock power systems 	<ul style="list-style-type: none"> Operating principles, functions and features of rolling stock power systems and components Principles of electrical, electronics and power electronics and circuitry drawings Types and functions of rolling stock power equipment that includes: <ul style="list-style-type: none"> Power transformers Power supply and battery Power collector system Power protection Power generator Circuit breaker Power distribution system Types of common degradations and failures of rolling stock power equipment Procedures to dismantle rectify, repair and/or replace, faulty rolling stock power components and re-assemble Procedures for conducting system 	<ul style="list-style-type: none"> Operating principles, functions and features of rolling stock power systems and components Principles of electrical, electronics and power electronics and circuitry drawings Principles of power protection, isolation and distribution Common fault symptoms in rolling stock power equipment Methods of locating and rectifying faults Types and usage of troubleshooting techniques, equipment and tools Safety guidelines for usage of tools and equipment in troubleshooting rolling stock power systems 	<ul style="list-style-type: none"> Principles of power distribution and protection Factors affecting rolling stock power systems and components performance Fundamental of power controller and stabilities Failure investigation and prevention methods Methods and tools for power systems diagnostic analysis Organisational maintenance procedures, Work Instructions (WI) and Original Equipment Manufacturer (OEM) technical recommendations Types and methods of functional tests on rolling stock power systems Functional relationships between, rolling stock power systems, other rolling stock systems, plant equipment and the overall rail system 		

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

	<ul style="list-style-type: none"> • Safety guidelines on use of tools and equipment for preventive maintenance on rolling stock power systems • Types and usage of Personal Protective Equipment (PPE) for rolling stock power systems maintenance • Organisational maintenance documentation and fault reporting procedures 	<p>performance and functionality checks on rolling stock power systems and components</p> <ul style="list-style-type: none"> • Types and usage of tools and equipment for carrying out corrective maintenance • Safety guidelines on use of tools and equipment for corrective maintenance on rolling stock power systems • Types and usage of Personal Protective Equipment (PPE) for rolling stock power 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 power systems • Follow organisational procedures and/or Original Equipment Manufacturer (OEM) technical manuals to carry out preventive maintenance on rolling stock power systems • Perform functionality checks on rolling stock power systems and components • Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work • Record rolling stock power systems maintenance activities 	<ul style="list-style-type: none"> • Interpret work orders and prepare for corrective maintenance • Apply fault identification procedures to determine causes of rolling stock power system and components • Dismantle rolling stock power systems for corrective maintenance • Carry out rectification, repair and/or replacement of faulty components • Reassemble and reinstate rolling stock power systems and components • Perform functional tests on rolling stock power systems • Apply operating and safety measures in operating tools and 	<ul style="list-style-type: none"> • Use troubleshooting tools, equipment and methods to locate and analyse causes of rolling stock power equipment faults • Recommend corrective actions for identified faults on rolling stock power systems • Implement procedures on safe usage of tools and equipment during maintenance work • Analyse maintenance work documented for rolling stock power 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 power systems • Review organisational rolling stock power 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 power systems to ascertain effectiveness of maintenance procedures 		

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

	and report occurrences of potential faults identified	<p>equipment during maintenance work</p> <ul style="list-style-type: none"> Record and collate documentation of rolling stock power systems maintenance work 		<ul style="list-style-type: none"> 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 Coordinate rolling stock power systems maintenance with other rail systems maintenance needs 		
--	---	---	--	--	--	--