

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

TSC Category	Rail Systems Maintenance					
TSC	Ventilation System Maintenance					
TSC Description	Implement preventive and corrective maintenance of ventilation system					
TSC Proficiency Description	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	PTP-RSM-1044-1.1	PTP-RSM-2044-1.1	PTP-RSM-3044-1.1	PTP-RSM-4044-1.1		
	Carry out scheduled maintenance work on ventilation system	Conduct corrective maintenance on ventilation system	Troubleshoot and locate faults on ventilation system to recommend rectification methods	Diagnose root causes of ventilation system failure and review maintenance plans to prevent fault recurrence		
Knowledge	<ul style="list-style-type: none"> • Types, functions and operating principles of ventilation system • Types and functions of ventilation system that includes: <ul style="list-style-type: none"> • Motorised Operating Damper • Ventilation Fans • Compressed Air System • Smoke curtain • Local Sequential Controller (LSC) • Motor Control Centre • CD-related equipment • Procedures for servicing ventilation system in accordance to organisational maintenance procedures, Work Instruction (WI) and/or Original Equipment Manufacturer (OEM) technical manuals • Safety guidelines on use of tools and equipment for preventive maintenance on ventilation system • Types and usage of Personal Protective 	<ul style="list-style-type: none"> • Types, functions and operating principles of ventilation system • Types and functions of ventilation system that includes: <ul style="list-style-type: none"> • Motorised Operating Damper • Ventilation Fans • Compressed Air System • Smoke curtain • Local Sequential Controller (LSC) • Motor Control Centre • CD-related equipment • Risk assessment procedures • Procedures to dismantle, repair, replace and reassemble ventilation system • Procedures for conducting performance checks and identifying faults on ventilation system • Safety guidelines on use of tools and equipment for corrective maintenance on ventilation system 	<ul style="list-style-type: none"> • Fundamentals of mechanical and electrical instrumentation • Common fault symptoms in ventilation system • Methods of locating and rectifying faults • Types of troubleshooting techniques, equipment and tools • Safety guidelines for usage of tools and equipment to execute troubleshooting on ventilation system • Airflow and schematic diagrams of ventilation systems • Functional relationships between ventilation system, other Environmental Control Systems (ECS) and the overall rail system 	<ul style="list-style-type: none"> • Fundamentals of ventilation theory • Factors affecting system performance • Failure investigation and prevention methods • Methods and tools for diagnostic analysis • Procedures for defect diagnosis and root cause analysis • Organisational maintenance procedures, Work Instruction (WI) and Original Equipment Manufacturer (OEM) technical recommendations • Functional relationships between ventilation system, other Environmental Control Systems (ECS) and the overall rail system 		

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	<p>Equipment (PPE) for ventilation system</p> <ul style="list-style-type: none"> Organisational maintenance documentation and fault reporting procedures 	<ul style="list-style-type: none"> Types and usage Personal Protective Equipment (PPE) for ventilation system Organisational maintenance documentation and fault reporting procedures 				
Abilities	<ul style="list-style-type: none"> Perform preparation work to conduct preventive maintenance on ventilation system Follow organisational procedures, WI and/or OEM technical manuals to carry out preventive maintenance on ventilation system Perform serviceability checks on ventilation system Adhere to safety guidelines and operating instructions for tools and equipment during maintenance work Record ventilation system maintenance activities and report occurrences of faults identified 	<ul style="list-style-type: none"> Interpret work orders and prepare for corrective maintenance Apply fault identification procedures to determine causes of ventilation system faults Dismantle faulty ventilation system for corrective maintenance Carry out repair and/or replacement of faulty components Reassemble and reinstate ventilation system Perform functional tests for ventilation system Apply operating and safety measures in operating tools and equipment during maintenance work Record and collate documentation of ventilation system maintenance work 	<ul style="list-style-type: none"> Use troubleshooting tools, equipment and methods to locate and analyse causes of ventilation system faults Recommend corrective actions for identified faults on ventilation system Implement procedures on safe usage of tools and equipment during maintenance work Analyse maintenance work documented for ventilation system to identify possible workflow improvements to prevent fault recurrence 	<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 ventilation system Review organisational ventilation system maintenance procedures Propose new and/or enhanced maintenance procedures and/or WI in reference to OEM technical recommendations Monitor overall maintenance progress of ventilation system 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 Coordinate ventilation system maintenance with ECS and other rail systems maintenance needs 		