

Outcomes

Through a combination of targeted training and experience, an individual with a Multi service Vehicle MSV will be able to:

Roles and responsibilities	<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a tunnel Multi Service Vehicle MSV operator
Preparing for work	<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation Adhere with tunnel specific rules and procedures Undertake all pre-use checks
Travelling and manoeuvring	<ul style="list-style-type: none"> Understand the assistance to be given by the operator to assist a technician to couple or uncouple the number of units making up the MSV Configure and set for travel Travel whilst hauling and reversing loaded and unloaded rolling stock Carry out shunting operations Negotiate changes in alignment and gradients Follow instructions, signalling procedures and moving procedures Operate safety devices Explain ways of effectively communicating and interacting with others
Working tasks	<ul style="list-style-type: none"> Position Multi Service Vehicle MSV to receive loads Comply with loading procedures Ensure load integrity and security Transport loads to different locations Discharge / unload, loads into receiving areas Explain how to deal with emergencies and unplanned situations Transport people
Completing work	<ul style="list-style-type: none"> Maintain safe and tidy working areas Park a Multi service Vehicle MSV Park a Multi service Vehicle MSV and Rolling stock
Shutting down	<ul style="list-style-type: none"> Carry out shut down and securing procedures for the Multi Service Vehicle MSV and relevant rolling stock

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Learning for CPCS



Syllabus

Learning outcome	Training content	
<ul style="list-style-type: none"> Describe the nature of the sector of industry and their role and responsibilities as a tunnel Multi Service Vehicle MSV operator 	<ul style="list-style-type: none"> Industry type Customer / client needs Sector contribution Role Reporting structures Lifelong skills Working practices Social responsibilities Safety versus production 	<ul style="list-style-type: none"> Communication with colleagues / management / other trades Health and Safety at Work etc. Act Environmental issues (atmosphere, noise, fumes etc.) Other trades
<ul style="list-style-type: none"> Name and explain the purpose of principal components, the basic construction, controls and terminology 	<ul style="list-style-type: none"> Differing Multi Service Vehicle MSV types Functions and applications Power units Hydraulic / compressed air and electrical systems Transmission / drives Track checks 	<ul style="list-style-type: none"> Chassis / wheels / bogeys / etc. Stability / ground pressure Braking systems Carrying capacities ROPS / FOPS Battery changing
<ul style="list-style-type: none"> Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation 	<ul style="list-style-type: none"> Operator's manual Machine decals PPE Codes of Practice Working area plans / drawings Signals, communication and visual issues 	<ul style="list-style-type: none"> Method statements Load / tare sheets Risk assessment / COSHH Inspection and reporting forms / procedures Other relevant legislation
<ul style="list-style-type: none"> Adhere with tunnel specific rules and procedures 	<ul style="list-style-type: none"> Employer requirements Emergency procedure 	<ul style="list-style-type: none"> Tunneling environment Procedural requirements
<ul style="list-style-type: none"> Undertake all pre-use checks 	<ul style="list-style-type: none"> Regular and non-scheduled maintenance procedure Fire-fighting equipment Safety critical checks 	<ul style="list-style-type: none"> Sequence of pre-use checks Charge / fuel levels Defect reporting Braking systems
<ul style="list-style-type: none"> Understand the process to Couple / uncouple MSV unit types, assisting Technicians in this process. 	<ul style="list-style-type: none"> Types of MSV Units Coupling systems Multi Service Vehicle MSV positioning 	<ul style="list-style-type: none"> Multi Service Vehicle MSV lengths Visibility Passenger/ person safety Heavy / awkward loads

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Syllabus (continued)

Learning outcome	Training content	
<ul style="list-style-type: none"> • Configure and set for travel 	<ul style="list-style-type: none"> • Driving / moving controls • Attachments • Security of loads • Operating position • Pumping of track brakes 	<ul style="list-style-type: none"> • Visibility • Tipping body position (rolling stock) • Directional lighting • Warning lighting / markers
<ul style="list-style-type: none"> • Travel whilst hauling and reversing loaded and unloaded rolling stock 	<ul style="list-style-type: none"> • Driving / moving controls • Ground conditions • Traction • Starting / stopping • Hazards 	<ul style="list-style-type: none"> • Working area • Visibility • Control of passengers
<ul style="list-style-type: none"> • Carry out shunting operations 	<ul style="list-style-type: none"> • Visibility aids • Limitations of vision • Personnel • Positioning • Sufficient work area lighting 	<ul style="list-style-type: none"> • Hazards • Loading & unloading / shunt areas • Signalling
<ul style="list-style-type: none"> • Negotiate changes in ground conditions and gradients 	<ul style="list-style-type: none"> • Traction • Speeds • Hazards – spills / frost etc. 	<ul style="list-style-type: none"> • Warning signs • Types of information
<ul style="list-style-type: none"> • Follow instructions, signaling procedures and moving procedures 	<ul style="list-style-type: none"> • Signaling methods • Procedures for starting, travelling and stopping 	<ul style="list-style-type: none"> • Signalling protocol • Sources and types of instructions
<ul style="list-style-type: none"> • Operator safety devices 	<ul style="list-style-type: none"> • Types of safety devices 	<ul style="list-style-type: none"> • Applicable checks • Operating restrictions
<ul style="list-style-type: none"> • Explain ways of effectively communicating and interacting with others 	<ul style="list-style-type: none"> • Types of communication • Communication protocols • Hand signals • Hierarchy of responsibilities 	<ul style="list-style-type: none"> • Appropriate type of communication for situation / environment • Working relationships

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Syllabus (continued)

Learning outcome	Training content	
<ul style="list-style-type: none"> Position Multi Service Vehicle MSV to receive loads 	<ul style="list-style-type: none"> Loading conditions Visibility 	<ul style="list-style-type: none"> Hazards
<ul style="list-style-type: none"> Comply with loading procedures 	<ul style="list-style-type: none"> Signalling / following instruction from guards Driver protection Material types and compositions 	<ul style="list-style-type: none"> Carrying capacities Weight distribution Visibility Hazards Loading sequences
<ul style="list-style-type: none"> Ensure load integrity and security 	<ul style="list-style-type: none"> Overloading Overspills 	<ul style="list-style-type: none"> Projecting loads Load security
<ul style="list-style-type: none"> Transport loads to different locations 	<ul style="list-style-type: none"> Travel routes Loaded route procedures / protocols Materials / Multi Service Vehicle MSV protection Hazards Other MSV's 	<ul style="list-style-type: none"> Signalling / following instructions Efficiency Visibility Speed limits Environment conditions
<ul style="list-style-type: none"> Discharge loads into receiving areas 	<ul style="list-style-type: none"> Types of discharge areas Stability (tipping skips) Material jams Fully emptying tanks / refilling 	<ul style="list-style-type: none"> Discharge whilst moving Signalling / following instructions
<ul style="list-style-type: none"> Explain how to deal with emergencies and unplanned situations 	<ul style="list-style-type: none"> Risk assessment Organisational requirements Travel and towing procedures for defective locos Communication procedures Transporting rules 	<ul style="list-style-type: none"> Applying / releasing braking and auxiliary systems Legal / organisational requirements Incident reporting Load shift during transport procedures
<ul style="list-style-type: none"> Transport people 	<ul style="list-style-type: none"> Types of suitable rolling stock Organisational requirements Signalling / communicating Travelling requirements 	<ul style="list-style-type: none"> Access / egress issues Seating Stowage / transport of materials / tools etc. Controlling passengers Positioning for embarking / disembarking

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Syllabus (*continued*)

Learning outcome	Training content	
<ul style="list-style-type: none"> Maintain safe and tidy working areas 	<ul style="list-style-type: none"> Driving cap cleanliness Tools / equipment storage Stowage of personal possessions during work 	<ul style="list-style-type: none"> Control of spillage Fluids / lubricants storage Shunts, crossings and general track
<ul style="list-style-type: none"> Park an MSV 	<ul style="list-style-type: none"> Positioning Organisational requirements 	<ul style="list-style-type: none"> Parking directions Access / egress requirements
<ul style="list-style-type: none"> Park a Multi service Vehicle MSV with rolling stock 	<ul style="list-style-type: none"> Parking places Organisational requirements 	<ul style="list-style-type: none"> Security of rolling stock after uncoupling Lighting requirements
<ul style="list-style-type: none"> Carry out shut down and securing procedures for the Multi Service Vehicle MSV and relevant rolling stock 	<ul style="list-style-type: none"> Multi Service Vehicle MSV cleanliness Shut down procedures Recharging / refueling 	<ul style="list-style-type: none"> Security Parking and positioning Lighting requirements

Note: The listed training content should not be considered exhaustive and subjects may be added to reflect the individuals' working environment.

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Safety critical

Emphasis to be placed on the following topics:

Topic	Emphasis
<ul style="list-style-type: none"> • Skidding during braking 	<ul style="list-style-type: none"> • Causes of skidding, prevention methods and damage caused by skidding
<ul style="list-style-type: none"> • Deadman controls 	<ul style="list-style-type: none"> • Knowledge of the different types, their function and reason for not overriding them
<ul style="list-style-type: none"> • Clearances 	<ul style="list-style-type: none"> • Ensuring that all loads are within given criteria and consequences of transporting loads having excessive width
<ul style="list-style-type: none"> • Fire procedures 	<ul style="list-style-type: none"> • Causes, consequences and specialist procedures for dealing with tunnel fires
<ul style="list-style-type: none"> • Moving Multi service Vehicle MSV 	<ul style="list-style-type: none"> • Adherence to following given instruction before moving and consequences of failing to do so
<ul style="list-style-type: none"> • Tunnel emergencies, breakdowns, and other work interruption 	<ul style="list-style-type: none"> • Following given procedures and instructions
<ul style="list-style-type: none"> • Safety equipment and devices 	<ul style="list-style-type: none"> • Ensuring that they are always serviceable and used properly

Duration / Ratios

To allow effective learning, these training times are recommended for this category. Candidates must be profiled to establish learning needs. Durations should be of a length to ensure the learning outcomes are met.

Experience	Accumulated hours
<ul style="list-style-type: none"> • Novice operators with no industry or machine experience 	70
<ul style="list-style-type: none"> • Novice operators with industry experience but no machine experience 	56
<ul style="list-style-type: none"> • Operators with unrelated machine experience 	35
<ul style="list-style-type: none"> • Operators with similar (MSV) machine experience 	7

All candidates must have received the equivalent to 7 hours of site safety and induction training

To allow effective learning, the listed candidate / machine / instructor ratio is the maximum recommended for this category

2 candidates : 1 Multi service Vehicle MSV: 1 instructor

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Resources

Practical equipment	Theory equipment
<ul style="list-style-type: none"> • Suitable Multi Service Vehicle MSV that meets current legislation • Relevant MSV's units relevant to the endorsement • Suitable training track with ramp, crossing and shunt areas • Signalling, communication and appropriate safety devices <p>PLUS</p> <ul style="list-style-type: none"> • Suitable PPE • Risk assessment for all areas where training is occurring 	<ul style="list-style-type: none"> • PUWER 1998 Regulations • Operator's manual • Specifications for types of tunnel locos • BS 6164 : 2001 – Code of Practice for Safety in Tunnelling in the Construction Industry <p>PLUS</p> <ul style="list-style-type: none"> • Suitable room for theory training purposes • Welfare and rest facilities during training

Category

Category description and types

CPCS defines a category as an item of plant or equipment used within the tunnel construction or allied industries and worked in accordance with the manufacturer's basic design. Although this category can have varying uses within industry and used with some variations, for CPCS training and assessment standards, the descriptions reflect basic core use. Endorsements are sub-categories that reflect the variations for this category by load hauling / reversing and capacity type. This category has two endorsements.

To identify a Multi Service Vehicle MSV within this category, a typical tunnel Multi Service Vehicle MSV would normally have the listed features and be used within the described characteristics.

Category features	Category characteristics
<ul style="list-style-type: none"> • Multi-axle, fixed chassis with mechanical/electrical hydraulic, transmissions • Diesel or electric power units • Double ended cab versions • Allows connection of rolling stock to form a Multi service Vehicle MSV 	<ul style="list-style-type: none"> • Able to travel in forward and reverse • Can travel in either direction from the driving position • Able to receive / deliver loads by means of access & egress via a Tunnel portal • Able to transport all loads up to the tunnel face / or other relevant areas over long distances • Deposits the load(s) either at the tunnel face / or into a designated loading area

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Endorsements

Endorsement characteristics

- **Endorsement A:** multi unit articulated
 - **Endorsement B:** single unit non articulated
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